

The Australian Industry Group

Investing in Workforce Literacy Pays

Building Employer Commitment to Workplace
Language, Literacy and Numeracy Programs

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AiGROUP

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The Australian Industry Group has been concerned for some time about the level of foundation skills in the workforce. Our latest survey of employers indicates that 93 per cent of them indicate that low levels of literacy and numeracy have an impact on their business. So it is important for employers to engage with workplace literacy and numeracy programs to address this problem.

We wanted to establish a business case for employers to invest in this type of training and so the Building Employer Commitment to Workplace Literacy and Numeracy Programs project was developed. The particular focus of this project was to establish the return on investment for employers who participate in programs. To conduct this difficult endeavour we engaged the Australian Council for Educational Research, an organisation that has expertise in this methodology, to assist us in the research.

The results from the research are very impressive. For those companies that were able to generate a return on investment calculation the results were all positive in the range of 102 to 163 per cent. These results were achieved across a number of different States and industries such as manufacturing, utilities, construction and aged care.

These positive results strengthen the business case for employers to invest. In addition to other reasons for implementing workplace reform in this area, it now also makes good economic sense. We hope that all employers will heed these results and engage in foundation skills training for their workforce.

A further dimension of this project was to assist employer understanding of the Australian Core Skills Framework. This is a major means of identifying improvement and progress for individual employers who undertake the training. It is also the key means of measurement for the National Foundation Skills Strategy for Adults.

Ai Group finalised the employer guide to the ACSF, referred as to Unlocking Workforce Potential, during the life of the project and it has been well received.

This report makes a significant contribution to the advancement of workplace literacy and numeracy in Australia and I urge all employers to engage in this important policy area to enable a strengthening of our workforce capacity.

Innes Willox

A handwritten signature in black ink that reads "Innes Willox". The signature is written in a cursive style and is positioned above a horizontal line.

Chief Executive
Australian Industry Group

Background

The previous Australian Industry Group project in this area, the *National Workplace Literacy Project*,¹ demonstrated the importance of and employer interest in Return on Investment considerations in relation to the provision of Language, Literacy and Numeracy (LLN) programs in the workplace. In the workplace trial element of the project the literacy practitioners discussed potential Return on Investment considerations with the participating employers. The employers were encouraged to develop indicators that would represent success for them in their workplaces. A range of indicators were forthcoming which were all in some way related to the central notion of productivity.

Formal collection of data on investments and returns, requiring the development of discrete tools, was not within the scope of the project. Indeed, earlier research has indicated that many firms do not carry out systematic evaluations of their training and even fewer attempt to calculate the returns to their investment.² The project emphasis was on the perceived outputs and improvements. Nevertheless, the use of Return on Investment indicators provided a specific focus for both employers and trainers and contributed to the determination of project outcomes. This enabled consideration of such key factors as productivity, quality, compliance, safety and Human Resource measures. There was demonstrated value in attempting to link Return on Investment considerations to LLN training. This approach was effective for employers when determining the precise nature of workforce LLN issues that confronted them and also useful for trainers when designing a program to address the issues.

The project invited employers and trainers to consider how the input of LLN training might be expected to impact on a range of outputs for the enterprise and for the individuals. Employers and trainers were asked to comment on the range of Return on Investment indicators before the training commenced and on the observed outcomes as a result of the targeted LLN training. Outcomes were reported as both the increase in labour productivity and a number of additional 'employability skill' improvements. The response to the return on Investment indicators was positive and has highlighted the potential of conducting further work in this area using a more formalised approach supported by discrete tools.

The report included the following specific recommendation in relation to this issue:

Incorporate Return on Investment measures into LLN workplace training

The use of Return on Investment indicators provided a key focus for employer involvement and trainer planning and preparation in the project. Return on Investment measures could be incorporated into all workplace LLN programs. As an initial step it is proposed that a set of measures be developed which include but not are restricted to:

- Productivity;
- Quality;
- Safety;
- Communication;
- Compliance;
- Further training; and
- Promotion.

It is necessary and timely to promote the connection between LLN and productivity. The research indicates that little attention has been paid to this and that "the literature is hedged with cautions."³ Canadian research reports growing evidence of the link between workplace training in general and

¹ Australian Industry Group, National Workforce Literacy Project, Final Project Report, January 2012.

² Research at a Glance, Returns on Investment in Training, NCVER, 2001.

³ Gray, Alison (2006) Upskilling through Foundation Skills: A Literature Review", a report prepared for the Department of Labour, Government of New Zealand.

productivity “there is remarkably little evidence of the benefits for employers of improving basic skills of employees.”⁴

Introduction

Given this background the purpose of this project is for The Australian Industry Group (Ai Group) to determine the extent of Return on Investment (ROI) outcomes for employers who invest in Language Literacy and Numeracy (LLN) Programs in the workplace. An ROI instrument will be developed and trialled through selected Workplace English Language and Literacy (WELL) projects. The ROI instrument will demonstrate the effectiveness and benefits of LLN training to assist with future employer uptake of and investment in LLN training. The Project was funded from National Foundation Skills Outreach and Leadership Program which is an administered program.

Australian Industry Group will develop a ROI instrument which will be trialled in selected WELL workplaces and determine the extent of ROI outcomes for employers who invest in LLN. It is anticipated that the ROI instrument will measure the effectiveness and provide evidence of the benefits of LLN training which will ultimately assist with employer uptake of and investment in LLN training. The project builds on recommendations from the Ai Group National Workforce Literacy Project Final Report, which demonstrated the importance of employer engagement in the provision of English language, literacy and numeracy (LLN) training in the workplace.

In order to undertake this work the Ai Group sub-contracted the Australian Council for Education Research (ACER) to undertake a number of the project tasks. These included the development of the measurement instruments, participation in the consultation with employers participating in WELL projects, analysis of the results and the production of a report to the Ai Group at the completion of its deliberations. This specific project work was also underpinned by a comprehensive literature review.

In addition to this major focus on the development of ROI there was a further component of the project devoted to the production of an employer guide to the Australian Core Skills Framework (ACSF). There were outcomes in relation to the ACSF that flowed from the National Workforce Literacy Project. Employers in the trial site were very interested in the ACSF and the information it conveyed about the LLN skills of the employees. They were similarly interested in the potential of the ACSF as one of the means to measure employee improvement. The final report of the National Workforce Literacy Project recommended that an employer's guide to the ACSF be developed to further increase employer awareness about workforce LLN. As a result of this the development of an employer guide was included as a component of this project.

Project Aims

The specific aims of this project are to:

- develop a Return on Investment instrument to be used in selected WELL programs to contribute to a business case for industry involvement in foundation skills programs.
- implement the Return on Investment instrument in selected WELL programs in consultation with participating employers.
- utilise the Australian Core Skills Framework as a benchmark measurement of outcomes for project participants.

⁴ Merrifield, Juliet (2007), International Workforce Literacy Review, England” a report prepared for the Department of Labour, Government of New Zealand.

- develop an Employers Guide to the ACSF in consultation with employers.
- evaluate and report upon the project outcomes with a particular focus on Return on Investment measures within the context of the National Foundation Skills Strategy for Adults.

Link to National Foundation Skills Strategy for Adults

As indicated a project aim was to link the project work to the development of the National Foundation Skills Strategy for Adults. The inaugural meeting of the Standing Council on Tertiary Education, Skills and Employment (SCOTESE) endorsed the national strategy in broad terms on 25 November 2011.⁵ The strategy highlights the strengthening of foundation skills in the workplace as a major component.⁶ The strategy referenced Ai Group documented employer concern in this area and added a reference to the Skills Australia publication which noted that many employers do not see the connection between developing the foundation skills of employees and enhancing productivity in the workplace.⁷ The Industry Skills Council's publication *No More Excuses* makes the same observation.⁸ There is a general call to raise the awareness of employers about the benefits of foundation skills training.

Ai Group supports the workplace stream within the national strategy. This project can integrate with the strategy as it contributes to the establishment of the business case for employers to be involved in foundation skills training through the national strategy. The demonstration of anticipated Return on Investment outcomes has the potential to act as a major incentive for industry to be involved.

Major Project Deliverables

The conduct of the project was organised into four main deliverables:

1. Develop a Return on Investment Instrument (ROI) to be used in selected WELL programs

The key deliverables in this area were to:

- initiate the project, including confirmation of the project methodology and the establishment of the Project Reference Group;
- select participating WELL projects in conjunction with the Foundations Skills Branch;
- engage ACER to develop the ROI instrument, and provide copy to the Commonwealth for review prior to implementation as part of the project;
- obtain employer commitment;
- provide LLN trainer briefing to inform trainers about the features of the ROI instrument;
- develop a draft Australian Core Skills Framework (ACSF) employer guide (to be undertaken by Louise Wignall Consulting and Technic) and provide draft copy to the Commonwealth for review prior to implementation as part of the project.

2. Implement the ROI instrument in selected WELL programs in consultation with participating employers and utilise the ACSF as a benchmark of outcomes for participants

⁵ Communique for the Inaugural Standing Council on Tertiary Education, Skills and Employment Meeting.

⁶ National Foundation Skills Strategy For Adults, Standing Council on tertiary Education, Skills and Employment, September 2012.

⁷ Skills Australia, Australian Workforce Futures: A National Workforce Development Strategy, 2010.

⁸ Industry Skills Councils, *No More Excuses*, 2011.

The key deliverables in this area were to:

- liaise with employers and others associated with the WELL projects about the implementation of ROI;
- access and analyse the pre and post-participant assessments against the ACSF provided by the WELL Program Manager,
- monitor progress in data collection.

3. Develop an Employers Guide to the ACSF in consultation with employers

The key deliverables in this area were to:

- develop an employer consultation schedule with employers;
- refine the ACSF Employer guide following consultations, with draft copy provided to the Commonwealth for review prior to implementation as part of the project;
- road test the ACSF Employer guide with employers.

4. Evaluate and report on the project outcomes with particular focus on ROI measures

The key deliverables in this area were to:

- receive reports from LLN practitioners incorporating ACSF analysis and outcomes;
- receive reports from participating enterprises to assess employer outcomes and incorporate analysis of ROI measures;
- produce a final report;
- disseminate outcomes. A summary of the final evaluation report will be disseminated publicly via various Ai Group channels. Ai Group will also develop, print, promote and distribute an ACSF Employer Guide developed in consultation with employers.

Report Structure

This final report comprises two components:

- a) Estimating Returns to Enterprises from Workplace Literacy Training: A Pilot Study, a report to the Australian Industry Group from the Australian Council for Educational Research.
- b) Unlocking Workforce Potential, An Employer Guide to using the Australian Core Skills Framework in the Workplace. This report can be located on the Ai Group website at www.aigroup.com.au

**ESTIMATING RETURNS
TO ENTERPRISES FROM
WORKPLACE LITERACY TRAINING:
A PILOT STUDY**



**A REPORT TO
THE AUSTRALIAN INDUSTRY GROUP**



Australian Council for Educational Research

ACN: 004 398 145; ABN: 19 004 398 145

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LIST OF ACRONYMS AND ABBREVIATIONS

ACER	Australian Council for Educational Research
ACFI	Aged Care Funding Instrument
ACSF	Australian Core Skills Framework
Ai Group	Australian Industry Group
ALLS	Adult Literacy and Life Skills Survey
CALD	Culturally and Linguistically Diverse
CBA	Cost-Benefit Analysis
CSfW	Core Skills for Work
DIISRTE	Department of Industry, Innovation, Science, Research and Tertiary Education
DTEC	Department of Training and Education Co-ordination
ESL	English as a Second Language
HEFCE	Higher Education Funding Council for England
IALLS	International Adult Literacy and Life Skills Survey
ICT	Information and Communications Technology
LES	Literacy and essential skills
LLN	Language Literacy and Numeracy
MoS	Measures of Success
NCVER	National Centre for Vocational Education Research
NESB	Non-English Speaking Background
NRDC	National Research and Development Centre for Adult Literacy and Numeracy (Canada)
OH&S	Occupational Health and Safety
OTFE	Office of Training and Further Education
ROE	Return on Expectations
ROI	Return on Investment
ROTI	Return on Training Investment
WELL	Workplace English Language and Literacy Program
WHS	Work Health & Safety

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The Project Team wishes to acknowledge the support of the seven training programs funded under the Workplace, English Language and Literacy (WELL) program that generously gave their time and input to the project. Their ongoing commitment, goodwill and patience have immeasurably enriched the information available to the study.

ACER wishes to thank the Australian Industry Group and the Commonwealth Government for commissioning and supporting ACER to conduct the study.

The feedback and guidance provided by the Project Reference Group is also gratefully acknowledged.

All errors or omissions are the authors' sole responsibility.

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EXECUTIVE SUMMARY

Overview

In September 2012 the Australian Industry Group (Ai Group) contracted the Australian Council for Educational Research (ACER) to conduct this study into the financial return to employers from investing in workplace literacy training programs. The Australian Government, through its Department of Industry, Innovation, Science, Research and Tertiary Education (DIISRTE), contracted the Australian Industry Group (Ai Group) to manage the project.

Over 2013-14, this study developed and trialled a set of data collection instruments in pilot mode with seven training programs funded under the Workplace English Language and Literacy (WELL) program. This report presents the results from the study in the form of case studies (Chapter 5), drawing on an extensive literature review (Annex 4) and mapping of similar evaluations in Australia and overseas (Annex 5).

Purpose

There is an assumed, although empirically weak, link between Language Literacy and Numeracy (LLN) training and business outcomes. In recent years, a body of research and evaluation has emerged, led by efforts in Canada and New Zealand, which has taken steps towards improving the knowledge base. The current study, based in the Australian context, has the following purposes:

- To document and illuminate the strengths and weaknesses in methodological approaches to measuring a ROI to LLN training based on Australian and international evidence;
- To develop a set of accessible ROI measurement tools for use by employers and other stakeholders; and
- To estimate, in pilot mode, ROI outcomes for a sample of employers who invest in LLN training for their workers.

Timeline and governance

The project commenced in September 2012 and concluded in December 2014. The project was supported by a Reference Group which met four times over the course of the project and provided input on draft material.

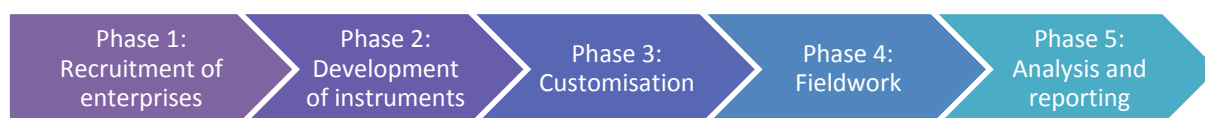
Method

The current project builds directly on recommendations from Ai Group's *National Workforce Literacy Project Final Report* (2012) which demonstrated the importance of employer engagement in the provision of LLN training in the workplace. That project's emphasis was on the perceived outputs and improvements arising from training but did not involve formal collection of data from companies. However, those employers were able to identify indicators that would represent successful LLN training for them in their workplaces and these have been incorporated into the current study.

The principles which underpin the methodology benefited from a number of earlier evaluations of literacy programs delivered in the workplace (see Annex 5). While other studies have conceived of evaluations which describe, in the most comprehensive terms possible, *returns to training*, the brief for this study was more focused – '*to estimate ROI outcomes for employers who invest in LLN training for their workers*'.

This overall project was divided into five sequential phases (Figure ES1).

Figure ES1 Project phases



The sampling of programs was entirely based on a convenience or “snow-balling” sample which was built by asking for recommendations from WELL coordinators. Participation in the study was entirely voluntary. The profile of participating enterprises is shown in Table ES1. A further 8 enterprises met with the project team but declined an invitation to participate, mainly for resourcing and workload reasons. All enterprises were asked to sign a consent form to confirm their involvement (Annex 3).

Table ES1 List of enterprises in sample

Enterprises	Industry	Size	State
Participating enterprises (7)			
Enterprise A	Manufacturing	Medium	NSW
Enterprise B	Aged Care	Small	SA
Enterprise C	Manufacturing	Small	Vic
Enterprise D	Construction	Large	NSW
Enterprise E	Utilities	Large	Tas
Enterprise F	Manufacturing	Medium	SA
Enterprise G	Aged Care	Medium	Vic

A key component of the methodology was the customisation of a set of generic data collection instruments and supporting instructions (Annexes 1 and 2). These were developed early in the project design. The principles guiding their development were to:

- place minimal administrative burden on the participating enterprise;
- ensure the instruments are capable of being tailored to particular workplace contexts; and
- be sufficiently specific about the data elements required without being overly general or vague in terms of what was required of each employer.

Detailed examples and possible data sources within the organisation were identified in the supporting instructions. The generic ROI data collection template was divided into three sections:

Section A: Program description and budget

Section B: Quantitative costs and benefits of training

Section B covered the substantive quantitative data needed for calculating the ROI. The templates sought to collect information at **three data collection points** - before commencement, directly after completion and 6 months after completion). This section was structured around 5 types of benefits (as discerned from the research literature)

- Personnel costs
- Productivity gains
- Operational costs
- Human resources costs
- Other financial benefits

Section B was designed to allow enterprises to add their own data elements. It also allows space for enterprises to comment on the quality of the data in terms of its completeness, time lag and the extent to which a change can be attributed to the training intervention etc.

Section C: Qualitative benefits of training

Section C is an open-comment section designed to allow supervisors and managers to reflect on the intangible changes which could be attributed to the training (e.g. 'improved self-confidence' and 'improved capacity to take on independent work').

The project has designed an 'Evaluation Framework' (Chapter 4) to assist with scoping the conceptual landscape of workplace literacy evaluation. It is designed to assist future reviews and evaluations with evaluation design and implementation so as to avoid some of the pitfalls made in this and earlier evaluations.

Results

In summary, this pilot study has identified the following results:

A. Enterprises perceive the returns to be real, uniformly positive and worthy of their investment

The project findings, summarised in Table ES2, affirm those from earlier evaluations where employers' rated highly the outcomes from workplace literacy training. ROI calculations were carried out in 4 of the 7 programs – each returning uniformly positive results. All seven employers can also point to numerous examples of individual workers or groups of workers who they have observed improvements in across a range of tangible and intangible dimensions (e.g. improved productivity, reduced errors, better understanding of instructions etc) – each of which is assumed to have a direct or indirect downstream benefit to business outcomes. Where possible, these benefits are quantified in the case studies.

The managers and supervisors who were interviewed spoke about a 'leap of faith' which they took, and must repeatedly take, when making the business case for internal resources to be directed towards LLN training. After a short period of training, most employers could visibly observe changes in the first year which they attributed to the training, which led to renewal of the program in the following year.

There was a general recognition among employers that ROI, or some form of cost/benefit analyses, would help to make a more compelling business case in the future.

Table ES2 Summary assessment of data completeness, quality and results

Enterprise ID	Industry sector	State	Sections of template attempted (Y/N)			Data completeness / quality – evidence of financial impact	Training impact
			Section A ⁹	Section B ¹⁰	Section C ¹¹		
Enterprise A	Manufacturing	NSW	Y	Y	Y	Data-driven culture uses multiple indicators to monitor change.	132% return from dual-program*
Enterprise B	Aged Care	SA	Y	Y	Y	Monetised changes in supervisor time across all data collection points	117.5% - savings through reduced documentation errors
Enterprise C	Manufacturing	VIC	Y	N	Y	Very small scale program – individual “stories” not aggregate benefits	Anecdotal but management still very positive re overall impact
Enterprise D	Construction	NSW	N	Y	Y	Large, complex and multi-faceted program made data collection difficult	Difficult to quantify across entire program – sub-program identified \$192,600 in savings
Enterprise E	Utilities	TAS	Y	Y	Y	ROI calculated based on unit improvements in service orders	102% at one site based on efficiency improvements
Enterprise F	Manufacturing	SA	Y	Y	Y	Multi-layered program produced measurable subset of data	163% return from error reduction and saved supervision time
Enterprise G	Aged Care	VIC	N	N	Y	Systems and data capture not ideal for this purpose	Anecdotal and important part of orientation – improving documentation and maximising call on government funding

*Dual program refers to the situation where Enterprise A conducted two programs in tandem and was unable to account for the individual benefits of either. The two programs were a training project funded under the WELL program and a Lean Manufacturing training program.

B. ROI and cost-benefit models are a starting point but not solely sufficient

ROI is, by design, a relatively simple indicator of benefits relative to costs. It has primarily been used in the business and finance sectors to differentiate and compare between alternative courses of action. When applied to the specific context of workplace LLN training, an enterprise could deploy a ROI evaluation to ask - *what will be the return on the LLN training program (Option A) compared to Option B (upgrade equipment) or C (a different workplace training program)? All remaining equal, where will the biggest gains be made over the short, medium and longer term?*

At the enterprise level, issues of data availability, quality and usefulness have considerable implications for conducting cost/benefit analyses – including whether it should be conducted at all. Some degree of pragmatism is required. For example, when evaluating workplace training one must undertake the task of defining ‘impact’ or ‘change’ or ‘benefit’ flowing to a ‘beneficiary’ (e.g. an employer, worker, government) resulting from a particular training intervention – in this case it is a workplace English language and literacy program which creates a further layer of complexity to the ROI model. More specifically, one must ascribe a financial value to the ‘benefit’ and express it as a

⁹ Program description and budget

¹⁰ Quantitative costs and benefits of training

¹¹ Qualitative benefits of training

percentage of the total cost net of all other factors. As shown in Annexes 4 and 5, cost-benefit analyses are increasingly being applied to this field with uneven success, and often with opaque transparency.

At a threshold level, it may not necessarily be feasible or cost-effective to conduct experimental studies, particularly in small-medium enterprises. Instead, it may be more practicable to conceive of these evaluation models as a means of:

- a. **Estimating cost-offsets in targeted areas** of the enterprise which could reasonably be directly or closely attributed to the LLN training thus neutralising the cost of training and generating a positive return for the enterprise (e.g. improved documentation); and
- b. **Making the most persuasive and compelling business case** possible for more (or less) investment in a particular area of the business.

C. ROI evaluation models must be customised, fit for purpose and add-value

Workplace LLN training, and the resulting benefits, do not operate in a vacuum. Operationally, this type of training is more often contextualised to support wider organisational objectives or programs and do not run as a discrete training program. But whatever the approach, ROI evaluation models must address a particular need or an identified gap in the knowledge base. Likewise, data collection must be administratively simple and be customised to the systems and processes occurring within the enterprise.

To rationalise any kind of staffing and resources commitment at enterprise level, evaluation methodologies must be transparent, coherent and add value. Transparency allows for some degree of comparability in that one understands the judgements made by the evaluators in selecting certain data elements (e.g. hourly savings or reductions in incidents), adjusting for various factors; and the overall approach taken to determining costs and benefits. In the aggregate, these micro judgements can significantly affect the ROI results.

The recent Canadian evaluation, UPSKILL (Gyarmati *et al.* 2014), is an excellent example of how a coherent evaluation model can be customised to a specific industry sector. It uses an experimental design with control groups and 'apples with apples' comparisons across job roles. The focus is on identifying training impact in areas of greatest need to give focus and direction to the evaluation. It also drew on routinely collected administrative data as further evidence of training impact.

Concluding remarks

The findings from these seven case studies, the project literature review (Annex 4) and the summary of earlier workplace evaluations (Annex 5), make clear that this field of evaluation is both methodologically fraught and logistically challenging. The reasons for this have been reaffirmed many times and most recently in the large-scale evaluations of workplace literacy programs in New Zealand (Upskilling Program¹²) and Canada (Measures for Success¹³).

ROI calculations need to be kept in perspective. Enterprises are complex entities operating in dynamic environments. Decision making which draws on ROI calculations must recognise them as *estimates*. As such, they are critically dependent on the quality of the data available on benefits and costs, and on other information about an enterprise's operations and environment.

Despite the inherent challenges, the demands placed upon workplace training programs are considerable and growing. Many countries have recognised the need for dedicated workplace literacy programs and made successive attempts, with mixed results, to more accurately capture evidence of impact.

The landmark study by Ananadiou, Jenkins and Wolf, 2003, published more than 11 years ago, offered a succinct roadmap:

"We belabour these points because we conclude, from this review, that there is a real and urgent need for more research. In the context of basic skills workplace provision, both large-scale quantitative analyses, assessing the benefits and costs of literacy/numeracy training on

¹² See Annex 5 (Section A5.3 New Zealand)

¹³ See Annex 5 (Section A5.4 Canada)

representative datasets, and case studies offering in-depth investigation of basic skills training at particular workplaces would be valuable.”

In principle, better evidence is needed to rationalise investment in workplace training. Most would agree that a robust evaluation model which captures reliable evidence and meets the needs of its users should be supported. Methodologically, however, principles often succumb to the technical and logistical obstacles inherent in the ROI evaluation method. Despite its challenges, it is clear that recent evaluations are: (a) forming a stronger evidence base, (b) making a more compelling case that there are quantifiable financial benefits to enterprises from LLN training; and (c) setting the groundwork for future evaluations.

CHAPTER 1 - INTRODUCTION

1.1. Overview

In September 2012 the Australian Industry Group (Ai Group) contracted the Australian Council for Educational Research (ACER) to conduct this study into the financial return to employers from investing in workplace literacy training programs. The Australian Government through its Department of Industry, Innovation, Science, Research and Tertiary Education (DIISRTE) contracted the Australian Industry Group (Ai Group) to manage the project.

Over 2013-14, this study developed and trialled a set of data collection instruments in pilot mode with seven training projects funded under the Workplace English Language and Literacy (WELL) program. This report presents the results from the study in the form of case studies (Chapter 5), drawing on an extensive literature review (Annex 4) and mapping of similar evaluations in Australia and overseas (Annex 5).

1.2. Purpose

The purpose of this study is to estimate ROI outcomes for employers who invest in Language Literacy and Numeracy (LLN) training.

This project is intended to strengthen the knowledge base about the returns to employers from workplace training in foundation skills, and thereby help guide employers in their investment decisions and policymakers in their initiatives to encourage such forms of workplace training. The instruments developed through the project are also intended by Ai Group to be a resource that employers can use to help evaluate the pay-off from their existing training programs and to help plan future training investments.

The current project builds more directly on recommendations from Ai Group's *National Workforce Literacy Project Final Report* (2012) which demonstrated the importance of employer engagement in the provision of LLN training in the workplace.¹⁴ The employers identified indicators that would represent successful LLN training for them in their workplaces. That project's emphasis was on the perceived outputs and improvements arising from training, and did not involve formal collection of data from companies.

There is an assumed, although empirically weak, link between Language Literacy and Numeracy (LLN) training and business outcomes. In recent years, a body of research and evaluation has emerged, led by efforts in Canada and New Zealand, which has taken steps towards improving the knowledge base. The current study, based in the Australian context, has the following purposes:

- To document and illuminate the strengths and weaknesses in methodological approaches to measuring a ROI to LLN training based on Australian and international evidence;
- To develop a set of accessible ROI measurement tools for use by employers and other stakeholders; and
- To estimate, in pilot mode, ROI outcomes for a sample of employers who invest in LLN training for their workers.

The instruments developed through the project are also intended by Ai Group to be a resource that employers more broadly can use to evaluate the pay-off from their existing training programs and to help plan future training investments.

1.3. Project governance

The project was supported by a Reference Group comprising senior representatives of:

¹⁴ See:

http://www.aigroup.com.au/portal/binary/com.epicentric.contentmanagement.servlet.ContentDeliveryServlet/LIVE_CONTENT/Publications/Reports/2012/10870_national_workforce_literacy_project_final_report_web.pdf

- Department of Industry, Innovation, Science, Research and Tertiary Education and the Department of Industry
- Australian Industry Group
- Manufacturing Skills Australia
- ITW Performance Polymers and Fluids
- Community Services and Health Industry Skills Council
- VET Development Centre, Queensland Department of Education, Training and Employment
- Office of the Training and Skills Commission, South Australia and TAFE South Australia
- NSW TAFE Social Inclusion and Vocational Access
- National Centre for Vocational Education Research

1.4. Timeline

The project commenced in September 2012 and concluded in December 2014. The main points of engagement with employers occurred in the 2013-14 financial year.

1.5. Ethics

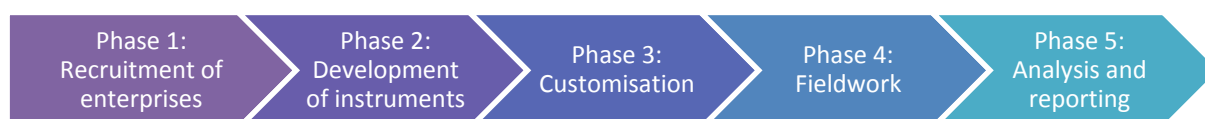
The project was conducted in accordance with *ACER's Code of Ethics*. The data collected from enterprises will not be shared with any other organisation or used for any purpose other than this project. No workplaces or individuals are identified in any report other than with their permission. Enterprises are referred to as 'Enterprise A, B, C' etc and some basic information is used to contextualise the results.

CHAPTER 2 - METHOD

The current project builds directly on recommendations from Ai Group's *National Workforce Literacy Project Final Report* (2012) which demonstrated the importance of employer engagement in the provision of LLN training in the workplace. That project's emphasis was on the perceived outputs and improvements arising from training but did not involve formal collection of data from companies. However, those employers were able to identify indicators that would represent successful LLN training for them in their workplaces and these have been incorporated into the current study.

The principles which underpin the methodology benefited from a number of earlier evaluations of literacy programs delivered in the workplace (see Annex 5). This overall project was divided into five sequential phases (Figure 2.1).

Figure 2.1: Project phases



The following sections describe each of these phases in detail.

2.1. Recruitment of enterprises

The sampling of programs was entirely based on a convenience or “snow-balling” sample which was built by asking for recommendations from WELL coordinators. Participation in the study was entirely voluntary. The profile of participating enterprises is shown in Table 2.1. A further 8 enterprises met with the project team but declined an invitation to participate, mainly for resourcing and workload reasons. All enterprises were asked to sign a consent form to confirm their involvement.

The recruitment process was guided in large part by: (a) referral and interest; (b) how conducive the program was to ROI measurement; and (c) whether the program had been considered an example of good practice by those who have oversight. In most cases, there was also a long-standing partnership between the training provider and the enterprise which assisted with the data collection and interpretation phases of the project.

The intention was to have a spread across different industry areas and locations. The research team made contact with more than 20 programs, held meetings with 15 and secured the participation of 7 (Table 2.1). Over the course of the entire project, the project team held at least 28 on-site meetings and conducted a further 8 phone meetings - the total points of formal contact with the employers was 36. There was ongoing contact between the project team and the employers throughout the project.

The process of recruiting and engaging with each enterprise, whether they chose to participate or not, was far more protracted and time-consuming than the project team had planned. On reflection, it was our “arms-length” detachment from the training programs which led to some logistical challenges in securing the ongoing support of enterprises. In earlier evaluations of a similar nature in Australia and overseas, the funding sponsor took steps to ensure the training programs were symbiotically aligned with the evaluations – each adding value to the other.

Like the training programs, the ROI project was funded by the Commonwealth Government. Early in the project, the Commonwealth wrote to each interested enterprise and training provider outlining the project purpose and requirements. The project team then conducted a follow-up visit or teleconference. Over time it became clear that the study was operating tangentially to the training programs which meant that, without incentive, enterprises were compelled only by their own goodwill, enthusiasm for the final product and any other lessons which could be gleaned from participating. Over 18 months or more, this ongoing engagement became increasingly challenging – and further exacerbated by the paucity of available data, technical obstacles, turnover of our ‘workplace coordinators’, postponement or delays of training programs and a generally time-poor group of enterprises.

Table 2.1: List of enterprises in sample and points of contact

Enterprises	Industry	Size	State	On site meetings	Phone meetings	Total
Participating enterprises (7)						
Enterprise A	Manufacturing	Medium	NSW	1	1	2
Enterprise B	Aged Care	Small	SA	3	1	4
Enterprise C	Manufacturing	Small	Vic	4		4
Enterprise D	Construction	Large	NSW	3		3
Enterprise E	Utilities	Large	Tas	1	2	3
Enterprise F	Manufacturing	Medium	SA	2	1	3
Enterprise G	Aged Care	Medium	Vic	4		4
Subtotal				20	5	25
Declining enterprises (8)						
Enterprise H	Aged Care		Qld	1	1	2
Enterprise I	Manufacturing		Qld	1		1
Enterprise J	Aged Care		SA	1		1
Enterprise K	Utilities		WA	1		1
Enterprise L	Defence Services		NSW	1		1
Enterprise M	Manufacturing		NSW	1	2	3
Enterprise N	Community Services		NSW	1		1
Enterprise O	Manufacturing		WA	1		1
Subtotal				8	3	11
Total (15)				28	8	36

2.1.1. General observations from employers

At the point of recruitment and initial engagement, there was a general spirit of enthusiasm among employers for the project in terms of its motivations, aims and objectives. There was recognition that ROI is a gap in their own understanding of the impact of the WELL training program but they are willing to take a 'leap of faith' because:

- the cost borne by the employer for the first year of training is not significant (in most cases); and
- by the second year the benefits of WELL training are becoming evident in the work and attitudes of the WELL participants.

Employers recognise the value that ROI data would provide to future funding applications but are quick to caution against the difficulties of measurement, particularly in terms of controlling for other variables. Employers also raised issues of commerciality, privacy, confidentiality in regards to financial data, particularly those relating to wages – although no data were requested at this level it was still a concern.

Employers' also expressed caution in that they did not want to place any additional burden on the workload of their employees by participating in this project in terms of taking them 'off the line' or giving them 'more paperwork'. Most, if not all, were stretched to capacity and needed to be convinced of the value that a research project would return to their business.

Each employer varied in terms of the sophistication of their systems, data capture, analytical capability and information management. In some cases, employers were able to identify detailed unit costs for the training group concerned and compare this to a control group (e.g. manufacturer working with LEAN system). Others, by the nature of their work, required data to be collected specifically for this project (e.g. reviewing case notes in aged care providers).

2.1.2. General observations from training providers

At the point of recruitment, representatives from the training programs were comparatively more cautious about the project and its stated aims - raising a number of concerns including, but not limited to the following:

- There is not necessarily an identifiable 'impact point' of WELL training in terms of productivity and efficiency – the effects of WELL diffuse into areas which are not apparent in business performance metrics;
- The benefits of WELL training occur well beyond the proposed six month completion point for this project;
- The impact of WELL training diffuses across a number of areas of an organisation, the worker's role and their life beyond work – the ROI calculation must ensure it has appropriate coverage of all these factors;
- There are motivations of social justice and community development which must be considered – it's not just about the financial return, there are social and community objectives being met *also*;
- The hours of training per worker varies considerably by training program - some workers may only participate in a few sessions;
- The WELL training can potentially create circumstances where workers, through the development of self-confidence, are *more* likely to raise issues around WHS, and escalate issues that require attention from their supervisors etc. Although a long-term benefit, these could complicate the measurement of short-medium term reductions in productivity and WHS 'costs'; and
- The training occurs in batches with trainees slipping in and out of training depending on circumstance and need – it would be difficult to isolate a particular 'training group' in some instances.

2.1.3. *Process of recruiting enterprises to the study*

The process of recruitment and early engagement typically involved the following steps:

1. **Step 1:** An initial meeting was convened between the enterprise, AI Group and ACER to:
 - Introduce the ROI project, including its aims, objectives and wider context;
 - Discuss the WELL program currently operating for this employer, including its focus, key stakeholders, delivery approach, evaluation approach, participant numbers etc;
 - Discuss the types of measures currently being considered when assessing the impact of WELL training, particularly financial (if any);
 - Seek feedback on the draft return on investment (ROI) instruments prepared by the project team;
 - Consider how the data collection instruments could be tailored and customised to meet the needs of the employer; and
 - Set up a timeline for collecting the required data.
2. **Step 2:** A key contact person was nominated by the enterprise (Workplace Coordinator) to be the link between the enterprise and the research team; and
3. **Step 3:** The Workplace Coordinator identified the areas of their organisation to provide data (e.g. Finance, HR, trainee supervisors).

The main reasons offered by enterprises when declining participation in the study was a lack of time and resources. Incentives to participate were not offered to any enterprises or training organisations. All time and staffing costs were generously offered by enterprises at their own cost. The primary reason for participation was that enterprises can see considerable value in building the business case within their own enterprise. Their view was that research studies such as this could assist their own enterprise to support a case for greater investment and a more effective and targeted allocation of resources in their own workforce training programs.

2.2. **Development of instruments**

A generic data collection instrument and supporting instructions, attached in Annexes 1 and 2, were developed early in the project design. The principles guiding their development were to:

- place minimal administrative burden on the participating enterprise;
- ensure the instruments are capable of being tailored to particular workplace contexts;
- be sufficiently specific about the data elements required without being overly general or vague.

Detailed examples and possible data sources within the organisation were identified in the supporting instructions. The generic ROI data collection template was divided into three sections:

Section A: Program description and budget

Section B: Quantitative costs and benefits of training

Section B covered the substantive quantitative data needed for calculating the ROI. The intention was to collect data at **three data collection points** - before commencement, directly after completion and 6 months after completion. This section was structured around 5 types of benefits (as discerned from the research literature):

- Personnel costs
- Productivity gains
- Operational costs
- Human resources costs
- Other financial benefits

Section B was designed to allow enterprises to add their own data elements. It also allows space for enterprises to comment on the quality of the data in terms of its completeness, time lag and the extent to which a change can be attributed to the training intervention.

Section C: Qualitative benefits of training

Section C is an open-comment section designed to allow supervisors and managers to reflect on the intangible changes which could be attributed to the training (e.g. 'improved self-confidence' and 'improved capacity to take on independent work').

2.3. Customisation to each enterprise

The key tasks for customising the data collection templates involved:

1. follow-up meeting(s) on site or via teleconference with the enterprise (e.g. supervisors, HR, finance units etc) to better understand existing data systems as they relate to workplace training, its costs, and its impact on work performance;
2. a meeting with the training provider to understand the objectives of the training and the approach being used;
3. provision of feedback to ACER on the draft instruments to be used in the workplace;

The key tasks for each workplace were as follows:

1. Identify the target group for inclusion in the data collection exercise. Ideally this is a group of employees who have yet to start or have recently started their WELL training.
2. Complete Section A and Section B (1st collection point) prior to, or close to, the commencement of training. Send Excel workbook to ACER.
3. Complete Section B (2nd collection point) and Section C directly after training completes (and update Section A if need be). Send Excel workbook to ACER.
4. Complete Section B (3rd collection point) 6 months after training completes (and update Sections A and C if need be). Send Excel workbook to ACER.
5. Provide feedback on your own enterprise case study.

2.4. Fieldwork

Across the seven programs, data sources including training program documents, interviews with senior managers, supervisors, trainers and company administrative records were used to populate the data collection templates.

The enterprises were regularly followed-up by the research team to offer support to the data collection process.

Upon completion of the training, the data collection templates were returned to the research team for analysis.

2.5. Data analysis, reporting and validation

Table ES2 (page ix) is a summary of data provided to the study from each enterprise. As with earlier evaluations of a similar nature, data sought on ROI is of variable completeness and quality. The more complete returns were those where the representative from the training provider took on the responsibility to collect and report data.

Each case study presented in Chapter 5 is presented in the most transparent manner possible to make clear the process for calculating the returns. As with earlier evaluations of a similar nature, some of the data returns are either patchy or incomplete. The most complete returns were often those where the representative from the training provider took on the responsibility to collect and report data.

CHAPTER 3 – BACKGROUND

This chapter summarises findings from earlier research and evaluations on workplace LLN training. The extended versions are included in Annexes 4 and 5 of this report.

3.1. Summary of research literature

As a field of evaluation, workplace LLN training has been described as “newly emerging” and “particularly underdeveloped” (Benseman, 2014; Gray, 2006; Barker, 2001). For the most part, studies lack the scale, depth and sophistication necessary to demonstrate outcomes with a high degree of confidence and generalisability.

Although this review covers a wide body of research, there are four landmark literature reviews which are worth mentioning by name because of their significant contribution to the field:

1. Ananiadou, K., A. Jenkins, *et al.* (2003). *The benefits to employers of raising workforce basic skills levels: a review of the literature*. London, NRDC
2. Gray, A. (2006). *Upskilling through foundation skills - A literature review*. Wellington: Department of Labour
3. Salomon, M. (2009). *Workplace literacy and essential skills: what works and why?* Montreal, The Centre for Literacy/Le Centre d'alphabétisation
4. Benseman, J., & Sutton, A. (2007). *A synthesis of foundation learning evaluation and research in New Zealand since 2003*. Wellington: Department of Labour

The work of New Zealand academic John Benseman is cited throughout as it provides a consistency of depth and insight much needed in the field of workplace LLN evaluation.

To date, there has been little credible evidence found on the impact of LLN on productivity and the cost effectiveness of LLN programs (Vorhaus *et al.* 2011). Much of the research literature is focused more on the ‘how’ and ‘why’ of conducting such evaluations than the presentation of valid results. Benseman and Sutton (2007) describe the state of research workplace literacy programs:

“There is very limited research on the economic value of LLN programs which can include immediate or early impacts on measures such as waste, injury rates and absenteeism and longer term effects such as monetary assessment of the productivity gains for employers and earnings gains for learners. ROI research is complex and costly and needs to be undertaken by experts and include sufficient time for empirical data collecting.”

There are considerable challenges in evaluating impact of training. Lynch *et al.* (2006) summarises these as follows:

“An important problem is that return on investment from training programs is typically unknown. More specifically, the results of training and development programs are not evaluated in terms of their effect on business results. The impact of training and development on organizational profitability is difficult to evaluate and often not attempted. The benefits of programs are often subjective and difficult to quantify in monetary terms. Benefits also accrue over time and the optimal point of time to evaluate is ambiguous. Because of the lack of evaluation, the effort put into developing human capital is often seen as an expense and not an investment.”

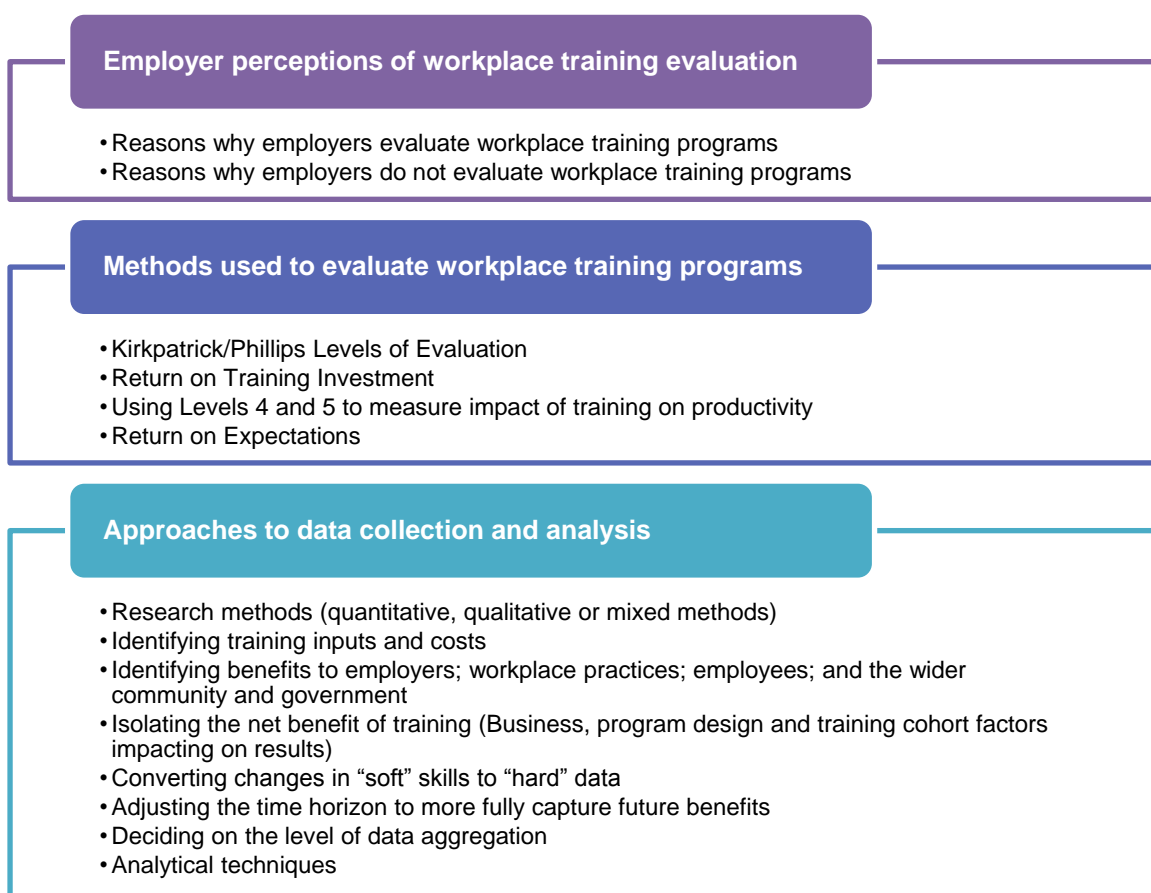
The most significant issues for measuring a ROI are: (a) the conversion of soft data to monetary values; (b) adjusting for the time horizon of benefits; and (c) attribution of change to the particular training in question (causation). Gray (2006) warns that *“the literature is hedged with cautions. Numerous authors point out that, in attempting to assess the benefits and impacts of literacy programs, it is extremely difficult to control for intervening factors such as external market influences, personal characteristics, incentives and disincentives for acquiring or displaying skills, the way work is organised and the degree of autonomy workers have.”* Gray (2006) goes on to caution that *“the relationship between training and outcomes is complex, and it is difficult to control adequately for extraneous factors, or to identify which component of the intervention—or whether the fact that there was an intervention at all—had most influence on the outcome. As with literacy programs themselves, clarity about the goals of any evaluation is essential, along with reality about what outcomes can be expected in the short term.”*

Ananiadou *et al.* (2003) identifies a set of recurring ‘*deficiencies in the workplace LLN literature*’, which may assist with understanding why evaluations fall short of meeting the criteria for Levels 3 (impacts on learners’ behaviour at work), 4 (impacts on organisational performance) and 5 (ROI):

- the small numbers of studies;
- lack of controls and experimental designs;
- small sample sizes;
- limited sources of data and an over-reliance on self-reported information;
- lack of pre-course and post-course comparisons;
- poor completion rates in post-course assessments; and
- lack of quantitative studies.

The structure of the project literature review, shown in Figure 3.1, is broadly representative of the topics covered in much of the research literature in Australia and internationally, since the early 1990s.

Figure 3.1 **Structure of literature review**



Traditionally, LLN evaluation practice has been dominated by qualitative approaches to measuring outcomes, with quantitative data gathered largely on program outputs, for example, the number of learners in a program, number of learners completing a program and so on (Salomon 2009). This emphasis has elicited some criticism over the past twenty years for its simplicity as well as the methodological weaknesses associated with relying on subjective observations, perception and respondent bias.

In critiquing the overall quality of workplace LLN evaluation, Salomon (2009) observed:

“...the reality is that quantitative evaluation has not been the dominant practice, as various important studies have noted since the late 1990s (Gray 2006; Pye and Hattam, 2008; Plett 2007). These have criticized the informal, unsystematic, unscientific, anecdotal, qualitative and subjective nature of many if not most of the evaluations used in workplace literacy and essential

skills training programs and urged a more formal, empirical, scientific, rigorous, robust, quantitative and objective approach.”

In a landmark Australian study, Pearson (1996) made the following observation:

“Although a great deal of research and evaluation of the impact of workplace language and literacy training programs has occurred in the past, it has generally been focused on qualitative analysis of such programs. Training provider evaluation has usually centred on what participants have achieved within the training room. When evaluation has moved beyond the training room to the workplace itself, most of the evidence has been anecdotal.”

Barriers to training evaluation include time and cost constraints, the complexity of the process, the comparative ease of relying on qualitative methods and indicators, a reluctance to “intensively monitor” employees, the “sensitive” nature of the process, and confidentiality concerns among workers. For many employers, especially small-medium enterprises, quantitative evaluation using controlled research methods is beyond their capabilities, in terms of the time, resources and expertise they are either able or willing to invest (Salomon, 2009).

Davidson *et al.* (1997) provides a useful summary these issues:

“There is a significant difference between evidence and proof. In most cases, data limitations prevent the establishment of absolute proof – say, that training caused the change in performance. For example, the performance measurement or accounting system in the organization may not collect all the data which is required to evaluate fully the results of training. Or perhaps there are other initiatives in the organization which may also contribute to performance improvements. Often, then, evaluation of training is seen as imprecise or just too hard. Managers would like to see it done, but are not sure of how go about it, and whether it will be effective.

However, this does not mean that the search for evidence should be abandoned. In most cases, the best that can be achieved may be that the evidence is consistent with training have a positive impact on performance; but the acquisition of such evidence is still better than not trying to accumulate any evidence at all. Evidence that training is valuable will help managers to target their investment more effectively and will help gain employee commitment to training. Most critically, evidence of the value of training will help to ensure that investment in human capital is regarded as strategically important.

Evaluation is an investment in progress, enabling the initiation and management of responsible and appropriate change. Thus it is important to be able to evaluate training initiatives and to assess their impact on training and strategic objectives.”

The findings from studies which have been conducted within workplaces, made possible with subjective, global judgements and non-trivial assumptions, are highly contextualised to the particular circumstances under which the research was conducted. Doucouliagos and Sgro (2000) outline why estimation and pragmatism drive much of the studies in this field:

“The measures of the impact of training are by necessity only estimates. As noted by many researchers, it is rarely the case that conclusive proof will be found about any organisational intervention. Rather, analysts compile credible evidence about the impact of training. This evidence must satisfy a number of requirements. The data used must be of sufficient quality. The techniques applied must be scientifically valid, and the analysis should address the possibility that training may not be the only factor behind changes in performance.”

Research methods are often highly qualitative in nature, involving interviews with, and surveys of, participants, their supervisors and trainers – a necessity when confronted with the paucity of quantifiable evidence of training impact held within existing systems (e.g. human resources, finance, training and development). In a bleak but corroborated assessment of workplace evaluation, Barker (2001) describes the current evidence base as: *“providing inconsequential reaction data and costly and time-consuming outcome data... With few exceptions, ROI articles present glowing reports but many studies would not meet academic research standards.”*

Overall, it is clear that enterprises which have sponsored basic skills provision for their workers have been content with the experience (Ananadiou, Jenkins and Wolf, 2003). This is a non-trivial finding, since involvement in such a program is inevitably disruptive and costly, even when governments

provide subsidies to cover direct costs of instruction. In other respects, as already noted, the research base is extremely thin. Likewise, despite the cautionary language which is replete in much of the research literature and evaluation material, most authors are optimistic that ROI can be a useful tool for employers.

3.2. Summary of workplace LLN evaluations

Annex 4 summarises the major workplace LLN in Australia, New Zealand, Canada, United Kingdom, United States and a selection from other locations. In spite of the sizeable number of workplace schemes now available, very little evidence bears directly on how basic skills training impacts on any employer outcomes (Ananadiou, Jenkins and Wolf, 2003). While there is information at the macro level that establishes associations between variables such as literacy skills and income, there are very few evaluations on an initiative, program or company level that attempt to link benefits or outcomes directly to a particular intervention (Gray (2006).

Gray (2006) observes a “*dearth of reliable evaluations of LLN initiatives and the difficulty of undertaking such evaluations. The difficulties are related to issues of perspective, measurement and attribution.*” According to Benseman and Sutton (2007), both the quantity and quality of LLN research have made great progress over recent years, due largely to the research programs of the National Research and Development Centre (NRDC) in England and the US-based National Centre for the Study of Adult Literacy and Learning (NCSALL). More recently, work undertaken by the Workbase centre in New Zealand, Skillnets in Ireland and Centre for Literacy in Canada have taken considerable steps towards improving the evidence base. Despite this progress, the field still lacks the funding, and subsequently the depth and quantity, of research studies that most other educational sectors have achieved.

There are five landmark evaluations in the area of workplace literacy evaluation which are worth mentioning by name because of their significant contribution to the field:

1. **New Zealand** - Department of Labour. (2010). *Upskilling Partnership Program - evaluation report*. Wellington: Department of Labour.
2. **Canada** - Palameta, B. et al. (2013). *Meeting Expectations: Measuring the Impacts of Workplace Essential Skills Training Final Report of Measures of Success*, The Centre for Literacy, Montreal.
3. **Canada** - Gyarmati et al. (2014). *UPSKILL: A Credible Test of Workplace Literacy and Essential Skills Training*. Toronto: Social Research and Demonstration Corporation
4. **United Kingdom** - Wolf, A., & Evans, K. (2011). *Improving literacy at work*. Abingdon Oxon: Routledge (Skills for Life)
5. **Australia** - Pearson, Geoff (1996) *"More than money can say: The impact of ESL and literacy training in the Australian workplace."* Canberra, Department of Employment, Education, Training and Youth Affairs

Unfortunately there are limitations in the extent to which evaluations can be compared. To illustrate this point Hollenback (2012) offers a scenario from an enterprise perspective:

"While the investment theory of trying to maximize ROI is conceptually easy to grasp, the actual calculations may require many assumptions and "guesstimates" about costs or benefits. This implies two things. First, since program administrators try to have as high an ROI as possible, if a "guesstimate" needs to be used in an ROI calculation, and guesstimate no. 1 yields a higher ROI than guesstimate no. 2, program administrators have an incentive to justify and use no. 1. That is to say, in many instances, ROI calculations can be strategically gamed. This leads to the second implication: It will be very difficult to compare the ROIs from different programs if quite different assumptions are used in their calculations."

The project review of earlier workplace evaluations highlighted the prevalence of survey and interview-based data collection as proxies for quantitative data sourced from administrative systems. These comparatively newer approaches are typified in the 'Return on Expectations' model, as used in the Canadian 'Measures of Success' study. In that case, it was observed that:

"ROE can be an especially useful technique when businesses fail to track the data needed at the individual level, making it nearly impossible to isolate the specific effects of a training program...However, despite the value of an ROE evaluation, some training professionals will not give up conducting true ROI studies."

It is important to note that most research on the returns to workplace literacy programs use a qualitative methodology that draws on employers' perceptions. This is in part because few companies collect quantitative data on the benefits arising from the training they deliver to employees, and also because estimating ROI tends to be complex. Also, due the difficulty converting intangible benefits to monetary values, they are often excluded from ROI calculations, likely leading to underestimation."

Most recently, Benseman (2014) comprehensively summarises these issues as follows:

"To date, there is a large body of writing on the value of workplace LLN programs within companies (Ananiadou, Emslie-Henry, Evans, & Wolf, 2004; Ananiadou, Jenkins, & Wolf, 2003; Gray, 2006; Salomon, 2009), but little of this literature is based on original research studies. Instead, most focus on surveys of stakeholders' opinions or simple post-course evaluations rather than more rigorous studies involving pre-/post- course analyses. Much of the writing is focused on whether the courses are rated positively by stakeholders instead of demonstrating the impact on LLN skills, let alone any impact on workforce and company performance. Consequently, there have been consistent calls for improving the research rigor of studies in this area, particularly by including quantitative data (Mikulecky & Lloyd, 1993; Pye & Hattam, 2008; Shi & Tsang, 2008)."

CHAPTER 4 – EVALUATION FRAMEWORK

This chapter builds on the findings of this study and earlier research and evaluations (see Annexes 4 and 5) to offer a new framework to assist employers, industry and other stakeholders with evaluating returns to individual enterprises from workplace literacy training. This framework is structured into three parts with underpinning tools, as shown in Figure 4.1.

The first step – to map the tools, data sources and appraisal of availability/quality available to the enterprise – is vitally important as it is the ‘planning’ stage which sets the course for the evaluation and determines the types of data collected, when they are collected and, ultimately the costs and resourcing requirements of undertaking the exercise. Table 4.1 summarises the types of data which could be collected, possible information sources; and offers some general comments as to its overall availability and quality for the purpose of measuring ROI or cost/benefit analyses.

The second step – to decide which measures are the most important - requires a considered deliberation of the areas which the enterprise would like focus on. Earlier evaluations are unanimous in their findings that capturing the full cost is extremely challenging – any estimate is likely to be an underestimate because of the scope of potential benefits and the time horizon of the evaluation. The menu of possible measures shown in Table 4.2 is an amalgam of lists identified in the research literature and earlier evaluations in Australia and overseas. These measures have been frequently reported by enterprises as having improved as a direct or indirect result of workplace literacy training.

The third step – to decide which level of evaluation to use – requires an enterprise to reflect on the decisions they made in respect to Steps 1 and 2 in terms of:

- availability and quality of data required to conduct a cost-benefit analysis,
- type of research method (quantitative, qualitative, mixed methods);
- areas of the enterprise which it will focus on and the specific measures it will seek to collect; and
- the resourcing implications of collecting new or manipulating existing systems or datasets into a form useful for the evaluation.

In making these decisions, enterprises can follow the steps outlined in Figure 3.1 to test their capacity to meet the objectives of their own evaluation and ensure a consistency of approach

Table 4.3 shows the fourth step in the process which is to recognise and, where possible, control for the mediating factors which may impact on types, timing and quality of data collected. These factors are necessary but not sufficient conditions for “success”. The research literature is replete with examples of methods to, in some way, quarantine the effect of training from the multitude of factors and noise occurring within an enterprise at any given point of time – not to mention at three separate points of time.

The key is to follow the recommendations and guiding principles of the framework to apply a consistent and standard frame of judgement on the evaluation. Where there are factors which may impact on results, acknowledge their potential impact or attempt to mediate its effect by adapting the research method or incorporating additional data, but the key is to ensure transparency of approach.

The least useful ROIs are those which espouse a return, high or otherwise, without revealing how data were collected or how the calculations were made. Without a transparency of approach, a benchmark with which to compare the return, or an understanding of what data elements were in scope, the users of such information are at best reassured of their investment but ultimately ignorant as to why and at worst, misled.

Finally, the set of data collection instruments which were developed and piloted with the seven participating enterprises in this study provide a starting point for future evaluation work in this area. These instruments are attached in Annex 1 and 2.

Figure 4.1: Components of Evaluation Framework

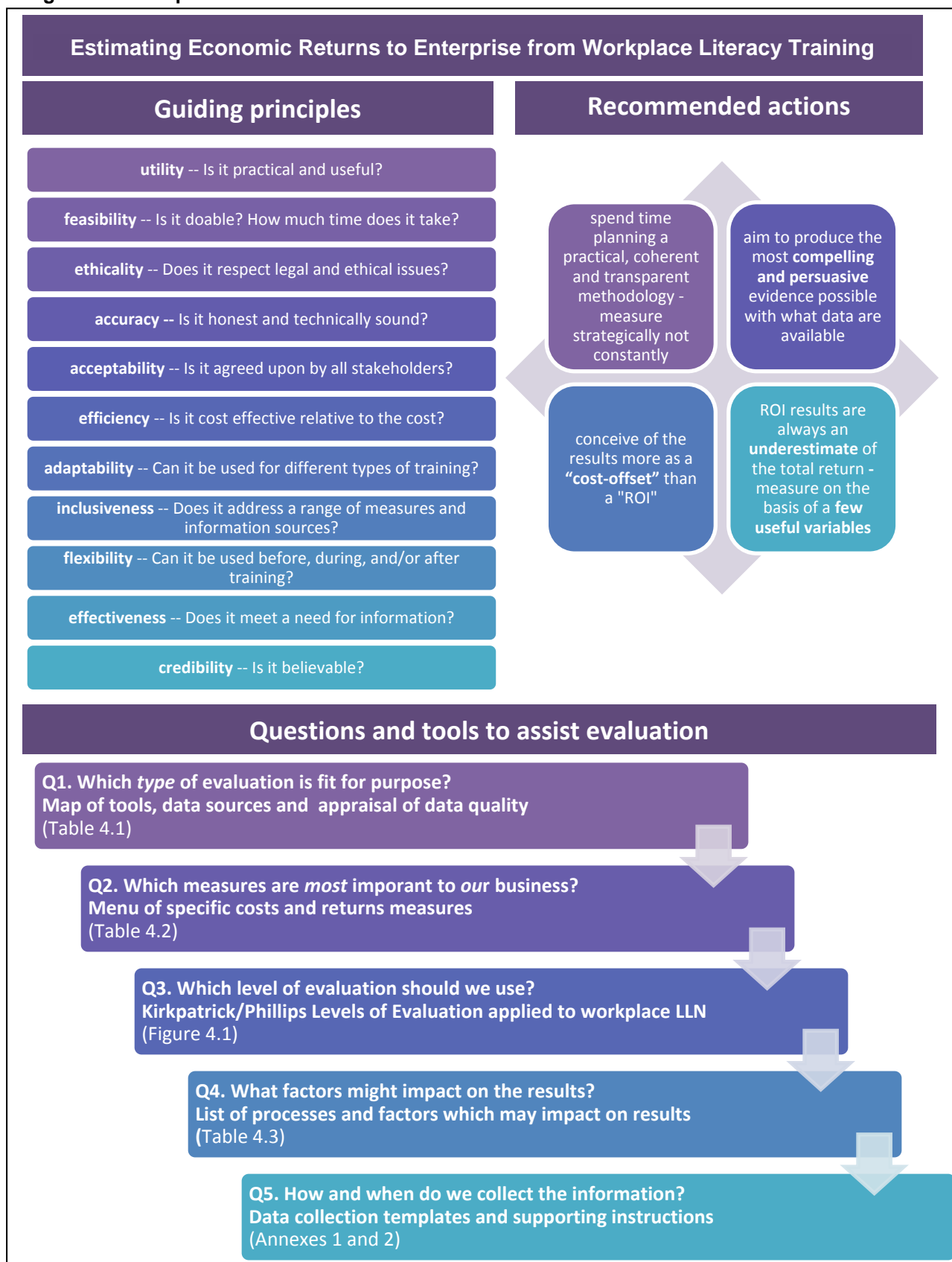


Table 4.1 Map of tools, data sources and appraisal of data availability/quality

	Quantitative			Qualitative		
	Research methods / tools	Data sources	Data availability / quality	Research methods / tools	Data sources	Data availability / quality
Category 1: Costs - Direct - Indirect	Return on Investment model Existing information systems Customised data collection tools	 Finance unit Trainer(s)	 Availability: Generally good Quality: Indirect/in-kind costs may not be complete			
Category 2: Tangible benefits a) Productivity and efficiency b) Sales and profitability c) Quality of products and services d) Customer service and satisfaction e) Occupational health and safety f) Organisational learning and development g) Organisational climate, culture and practices	Return on Investment model Existing information systems Minimise reporting burden on enterprise Customised data collection tools to fill gaps	 Finance unit HR unit Quality unit Marketing unit	 Availability: Extremely limited for this purpose – a key barrier to conducting a ROI calculation Quality: Direct link to training is weak Isolating net benefit Extracting data only on training group can be challenging	Return on Expectations model Interviews, surveys to compare pre/post expectations, perceptions, observations, reflections of training and its objectives/ outcomes	 Workers Supervisors Management Trainers Customers Other stakeholders	 Availability: Data can be collected if management see value and staff are compelled to participate Quality: May be good quality if collected with sound instruments but findings lack transferability – ROE is not ROI
Category 3: Intangible benefits a) Worker (skills gains and future plans) b) Worker (psychosocial and well-being) c) Worker (workplace practices) d) Enterprise and management e) Government and wider-community	Estimates which quantify the unit value of intangible benefits			 LLN/skills assessments Australian Core Skills Framework (ACSF) Core Skills for Work (CSfW) Core Skills Profile for Adults (CSPA) Psychological assessment tools Existing worker/ manager survey tools HR survey tools	 Workers Supervisors Management Trainers Customers Other stakeholders	 Availability: Only a small proportion of WELL programs conduct pre/post ACSF assessments Other tools may be deployed at management's discretion Quality: Conversion of changes in a "unit" of intangible benefit to a financial value –little agreement about how best to do this in theory or practice

Table 4.2 Menu of specific costs and returns measures

TRAINING COSTS	TRAINING BENEFITS	
CATEGORY 1: COSTS	CATEGORY 2: TANGIBLE BENEFITS	CATEGORY 3: INTANGIBLE BENEFITS
QUANTITATIVE	QUANTITATIVE + MIXED METHOD	QUALITATIVE
Direct Training Costs for Employers 1. cost of needs analysis/surveys 2. course design, development, or purchase 3. salary of instructor and/or consultant 4. salary of staff while on training 5. offsite travel, lodging, and meals 6. facilities rented or allocated 7. equipment and hardware 8. instructional and testing materials 9. course/training evaluation 10. other direct training cost for employers Direct Training Costs for Individuals 11. tuition 12. childcare 13. books and materials 14. equipment, e.g., computer 15. travel / parking 16. special fees, e.g., library 17. loss of income 18. other direct training cost for individuals Intangible Training Costs 19. loss of productivity while trainees are attending training 20. other employee time related to training, e.g., manager time helping to apply training 21. missed opportunity cost 22. induction costs 23. cost of replacing the employee while s/he is attending the course 24. maintenance costs, e.g., mail, transport, refreshments, record keeping, stationery, accommodation 25. higher wastage rates until the trainee is fully proficient 26. recruitment of training staff or selection of training package 27. the risk that a more highly trained employee may then obtain another job 28. other intangible training cost for employers + Government subsidy contribution	A. Productivity and efficiency 1. reduced supervision time (hours, \$) 2. worker hours saved as more capable of independent work (hours, \$) 3. reduced help from co-workers (hours, \$) 4. production costs per unit (\$) 5. increased output per employee (\$) 6. reduced downtime (hours, \$) 7. reduced stoppages / shutdowns / breakdowns (hours, \$) 8. reduced response time (hours, \$) 9. reduced overtime (hours, \$) 10. fewer employees needed (\$) 11. broadening the range of workers' tasks B. Sales and profitability 12. increased sales (\$) 13. improved profitability (\$) 14. improved competitiveness (\$) C. Quality of products and services 15. reduced waste or scrap (\$) 16. fewer mistakes / errors (\$ of reworking) 17. reduced calls to help line (time, \$) 18. reduced legal costs (\$) 19. reduced insurance costs (\$) 20. cost savings of project failure (\$) D. Customer service and satisfaction 21. improved customer satisfaction levels 22. repeat business 23. new business from client referrals 24. number of complaints / lost business E. Occupational health and safety 25. improved safety record 26. reduced employee use of dispensary 27. reduced safety-rule violations F. Org. learning and development 28. increased number of training programs 29. increased number of internal promotions G. Org. climate, culture and practices 30. reduced employee turnover (\$ cost savings of recruitment, orientation and induction of new staff, loss of corporate memory) 31. reduced employee absenteeism / tardiness 32. reduced need for outsourcing (\$) 33. reduced employee grievances 34. fewer disputes / strikes / grievances 35. reduced discrimination charges 36. improved understanding of markets 37. increased number of pay increases 38. number of requests for transfer 39. improved performance-appraisal ratings 40. implementation of new ideas 41. number of employee suggestions 42. improved other tangible benefit(s)	A. Worker (skill gains and future plans) 43. improvements in language, literacy and numeracy skills 44. improvements in technical skills 45. participation in further education and training 46. improved understanding of new technologies 47. more portable employee skills and job mobility 48. improved prospects for advancement B. Worker (psychosocial and well-being) 49. improved employee self-confidence / self-esteem 50. improved employee morale 51. reduced employee stress 52. improved employee motivation 53. improved employee resilience 54. improved employee trust 55. improved physical and mental health C. Worker (workplace practices) 56. improved employee pay and benefits 57. greater employee job satisfaction 58. better understanding of job requirements, work procedures and organisation 59. more participation in committees, working groups, staff rep. roles etc 60. improved perceptions of job 61. improved decisions made 62. more problems solved 63. improved employee work ethic 64. greater employee job security 65. more engaged with enterprise 66. increased use by standardized tools, documentation, frameworks etc D. Enterprise and management 67. supported successful completion of other project 68. better management-employee (workplace) relations 69. more co-operation among employees 70. fewer internal conflicts 71. greater employee flexibility 72. remediated workers' inadequate pre-employment skill levels 73. assisted with meeting changing skills requirements 74. assists with developing a culture of learning 75. supports social inclusion / cohesion E. Government and wider-community 76. reduced reliance on welfare 77. increased tax base 78. home life (e.g. parents reading to children, use of library services, job search) 79. improved other intangible benefit(s)

Source: Adapted from Barker, 2001 and Moy and McDonald, 2001

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Figure 4.1 Phillips/Kirkpatrick Evaluation Model applied to the context of workplace LLN training

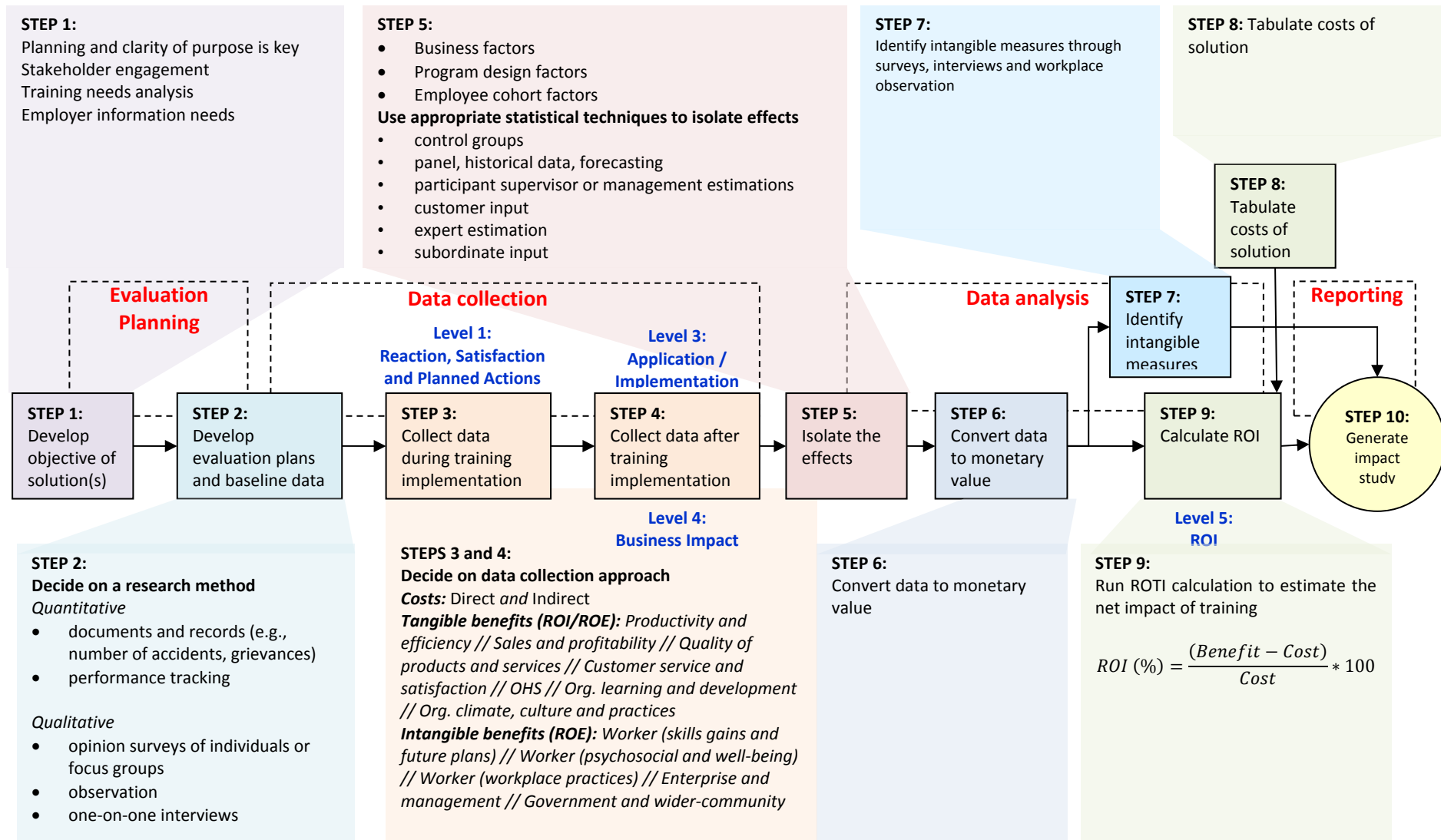


Table 4.3 List of processes and factors which may impact on results

Category 1: Workplace Training Process	Category 2: Individual mediating and moderating factors
Type of skills training	Demographics
Purpose	Life course circumstances
Business Alignment	Employment characteristics
Match to learner needs and goals (design)	Participant activity limitation / baseline health
Contextualised training content/curriculum (design)	Initial cognitive skills
Assessment and evaluation (design)	Initial non-cognitive skills
Teaching style (delivery)	Prior educational experiences
Flexible and customised delivery model	Participation in other training programs, e.g.
Duration	<ul style="list-style-type: none"> • Technical, vocational, reskilling • Documentation • OH&S • Hygiene and sanitation • Team work • Cultural diversity and awareness • Customer service • Conflict resolution • Communication and negotiation • Waste management • ICT/digital literacy
Intensity	
Timing of instruction	Category 3: Workplace mediating and moderating factors
Instructor's teaching ability	Employer/manager awareness and expectations
Class size	Employment/manager support for training
Contact hours	Coaching and reinforcement
Training take-up	Workplace culture
Completion of training activity	Access to resources and supports
Participant reaction to training	Opportunities
Participant engagement in training	Work processes
Participant awareness and intentionality	Incentive structures
	Clarity of roles and expectations
	Financial health of organisation
	Implementation of new processes / technologies / policies
	Restructuring and organisational change
	Category 4: Influencing factors
	Public policy and programs
	Socio-economic conditions
	Market conditions (customers, competition and demand)
	Labour market
	Research and innovation
	External knowledge, partnerships and networks

Source: Adapted from *Measures of Success Research Framework*, (2011). Human Resources and Skills Development Canada.

CHAPTER 5 – CASE STUDIES

This chapter presents seven case studies of Australian enterprises that participated in this pilot study. The case studies are referenced against the evaluation framework described in Chapter 4. A full appraisal of the availability, completeness and quality of these data is included in the methodology (Chapter 2).

In four cases ROI calculations have been estimated – Enterprises A, B, E and F. The study has uncovered a suite of recurring themes which affirm and add to earlier research and evaluations in this field. These results also offer new insights into the ways in which employers conceive of and utilise such training at enterprise level. More often it is used to facilitate wider organisation change or the introduction of parallel programs rather than as a discrete program.

Despite the difficulties in quantifying the change, the resulting case studies offer many and varied illustrative examples of the ways in which such training positively impacts upon enterprises. Interviewees at various levels of these organisations attest to the value added by workplace LLN training to the overall operations of their business, particularly in terms of the productive capacity, professional advancement and interpersonal skills of their workforce.

To put the case studies in context, Table 5.1 summarises each program in terms of their key themes, location, industry sector and participation. Most participating enterprises were small-medium enterprises and were based in Victoria, New South Australia, South Australia or Tasmania.

Table 5.1 Profile of participating enterprises and programs

Enterprise ID	Theme	State	Industry sector	Enterprise size	Participants	Data completeness / quality – evidence of financial impact	Training impact
A	“Supporting Lean manufacturing and enhancing worker engagement”	NSW	Manufacturing	Small	30	Data-driven culture uses multiple indicators to monitor change.	132% return from dual-program
B	“Improving documentation to enhance organisational culture”	SA	Aged Care	Small	27	Monetised changes in supervisor time across all data collection points	117.5% - savings through reduced documentation errors
C	“Reducing supervision time and improving quality”	Vic	Manufacturing	Small	5	Very small scale program – individual “stories” not aggregate benefits	Anecdotal but management still very positive re overall impact
D	“Supporting workforce engagement and worker advancement”	NSW	Building and construction	Large	~350	Large, complex and multi-faceted program made data collection difficult	Difficult to quantify across entire program – sub-program identified \$192,600 in savings
E	“Supporting new technologies and improve workforce efficiency”	Tas	Utilities	Medium	130	ROI calculated based on unit improvements in service orders	102% at one site based on efficiency improvements
F	“Supporting workplace health and safety training”	SA	Manufacturing	Medium	15	Multi-layered program produced measurable sub-set of data	163% return from error reduction and saved supervision time
G	“Reducing turnover and improving employee engagement”	Vic	Aged Care	Medium	60	Systems and data capture not ideal for this purpose	Anecdotal and important part of orientation – improving documentation and maximising call on government funding

5.1. Enterprise A - “Supporting Lean manufacturing and enhancing worker engagement”

Location: New South Wales, Western, non-metropolitan

Industry sector: Manufacturing

Description of employer and its workforce:

For more than 20 years, Enterprise A has been growing, packing, marketing and distributing products to supermarkets, food processors and independent grocers in Australian and overseas.

Description of program:

The workplace literacy training program operated from March 2013 - March 2014. It was implemented to support other training associated with the Lean Manufacturing approach as well as other systems and process roll-outs including a waste reduction program. The employer sees the WELL training and vocational training offered on site as being linked – “we needed both” to get the outcomes that were needed. Employees were released for training during the day for a two hour period on a bi-weekly basis. The other week they attended the Lean Manufacturing program. The employees were organised into three groups for the training.

There were 31 participants at the main New South Wales (NSW) site. Almost all participants are of Cambodian nationality and there are significant English proficiency issues. The workforce is described as being very loyal with most having been employed with the organisation for some years. Some WELL participants are pre-literate and most of the others are considered to be at ACSF Level 1 or low 2. The target group for training is at the lowest pay rate working in menial job roles (e.g. packing, sorting). The workers were perceived to not have the LLN skills or confidence to enrol in a vocational program (e.g. Certificate II in Food Processing).

Results:

There are both qualitative and quantitative benefits derived from participation in the WELL program. The view of the employer is that the WELL program brought “*huge benefits*” and that “*workers now understand what they are doing*”. The program has developed the workplace culture through building worker confidence, positively impacting on worker psyche, improving basic skills and encouraging communication with other workers, managers and subordinates. The site manager said that “I can communicate with employees where I never could before”.

The program is considered as “*a way to help them [the workers] participate actively with the rest of the team and advance, go to a higher pay grade*”. The observation from the floor is that workers are more likely to “ask questions, give answers, initiating the conversations where they never did before”¹⁵.

The employer now finds that when something goes wrong, workers now come forward with solutions where once they would have waited for the supervisor to fix it¹⁶. They now also work together which is necessary for a Lean Manufacturing model to succeed¹⁷. Workers are now making better judgments about whether to pack a product which has impacts on the quality of products and downstream impacts on customer satisfaction, repeat business and so on.

The employer uses WELL to “*introduce training*” – a stepping stone towards more learning and openness to further education and training. In terms of the ACSF, these shifts can be applied to measures such as the ability to: apply knowledge and share with others; and apply strategies for managing own learning.

The ACSF results indicate a significant qualitative benefit for participating employees. All employees participated in a pre and post assessment across all five core skills of the ACSF. There were 11 separate assessments across these core skills. The following examples illustrate one each of these assessments for each core skill across the full group of participants.

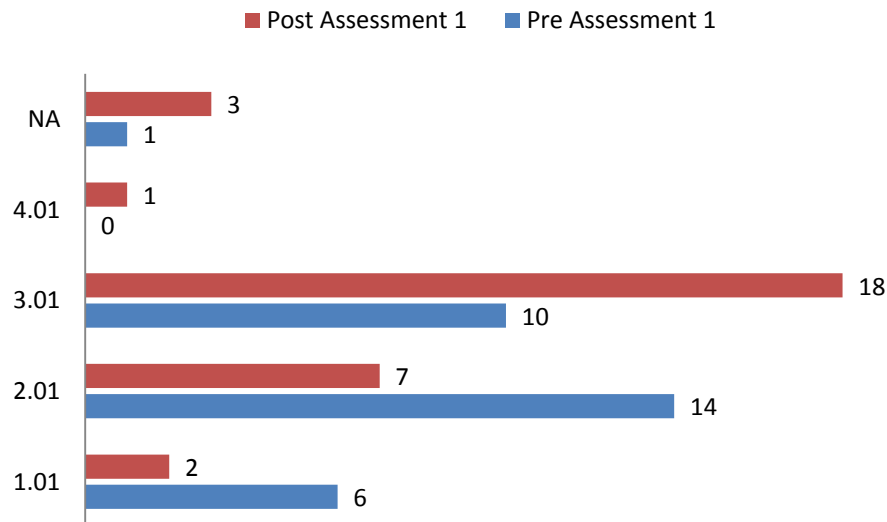
¹⁵ Refer to Core Skills for Work ‘Communicate for work’ - this shows a clear progression from Stage 1 to Stage 2.

¹⁶ Refer to Core Skills for Work: ‘Identify and Solve problems’ from Stage 1 to 2

¹⁷ Refer to Connect and work with others’ Stage 1 to 2

Figure 5.1 Enterprise A – Learning Core Skill 1.01 – 4.01

Indicator Description: Active awareness of self as a learner, planning and management of learning

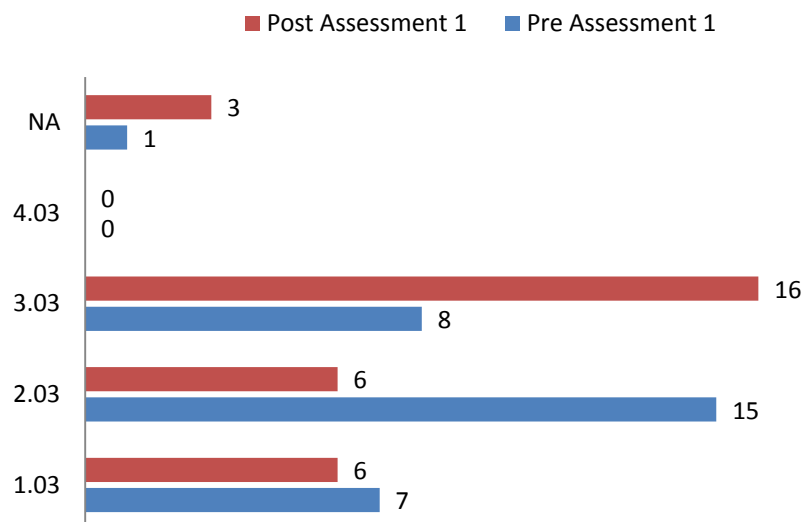


Source: Enterprise A WELL Program

This was the core skill area that produced the most change. These assessments indicate that prior to training there were 20 assessments below level three but only 9 after the completion of the training. Those at or above level three increased from 10 to 19 during this period.

Figure 5.2 Enterprise A – Reading Core Skill 1.03 – 4.03

Indicator Description: Audience, purpose and decision-making

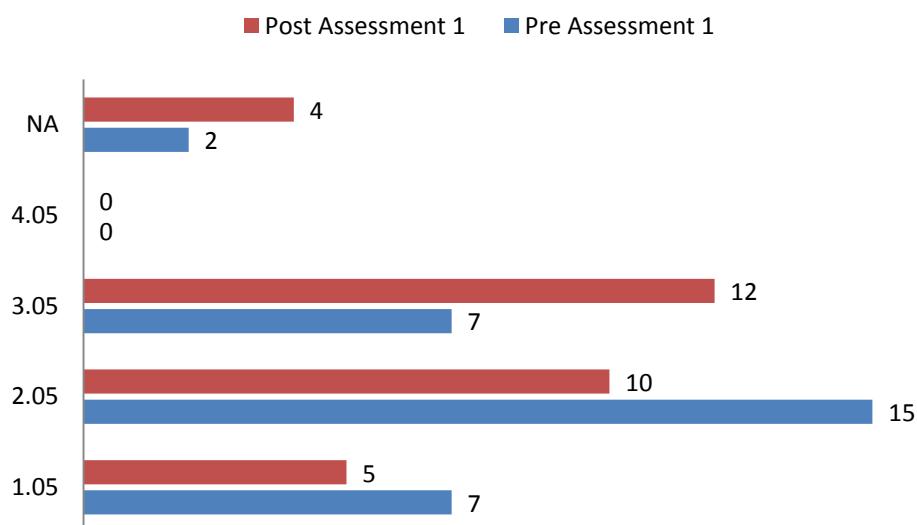


Source: Enterprise A WELL Program

For this assessment there were 22 participants below level three prior to training and only 12 after the training. The number of participants at or above level 3 doubled from 8 to 16 during this period.

Figure 5.3 Enterprise A – Writing Core Skill 1.05 – 4.05

Indicator Description: Audience, purpose and meaning-making

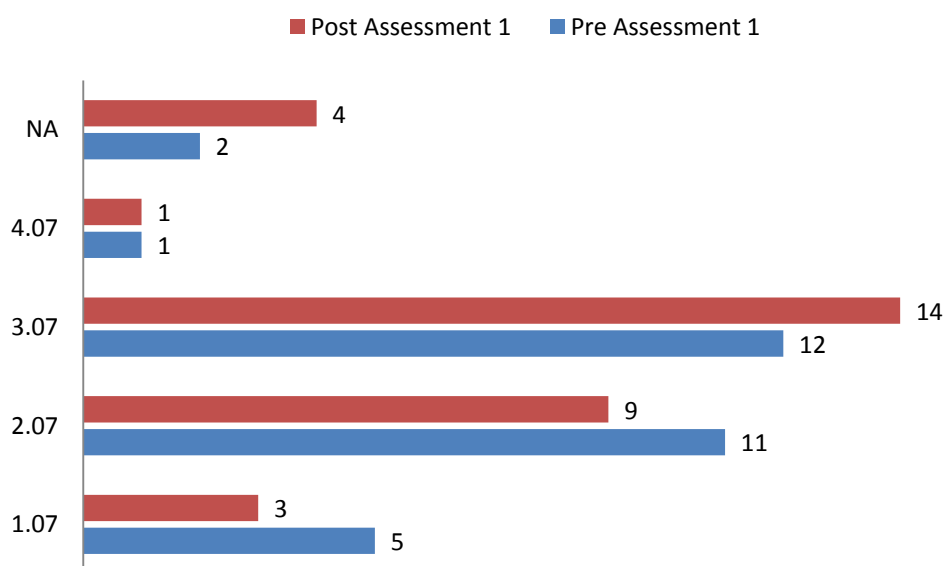


Source: Enterprise A WELL Program

For this assessment there were 22 participants below level three prior to training and 15 after training. Those participants with a level 3 or above assessment increased from 7 to 12.

Figure 5.4 Enterprise A – Oral Communication Core Skill 1.07 – 4.07

Indicator Description: Speaking

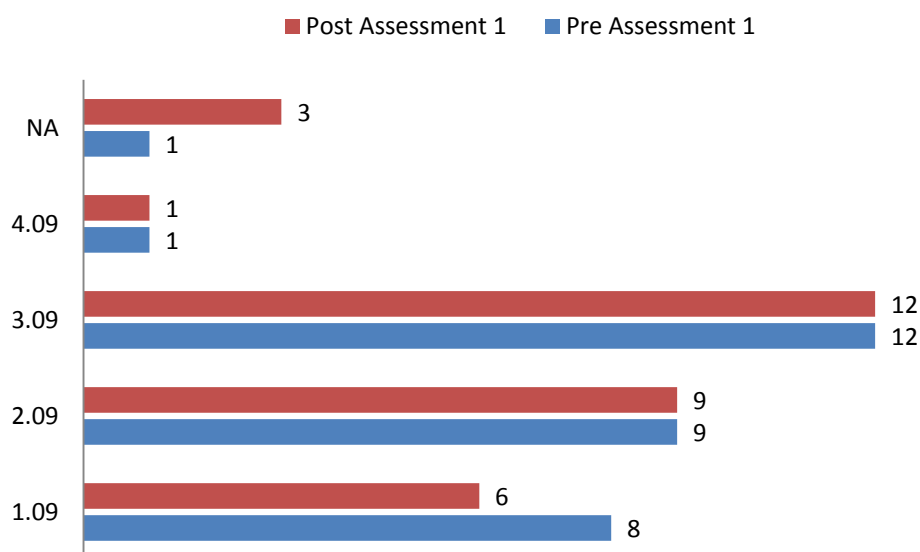


Source: Enterprise A WELL Program

For this assessment there were 16 participants below level three prior to the training and this was reduced to 12 after the training. Those above level three increased marginally from 13 to 15.

Figure 5.5 Enterprise A – Numeracy Core Skill 1.09 – 4.09

Indicator Description: Identifying mathematical information and meaning in activities and texts

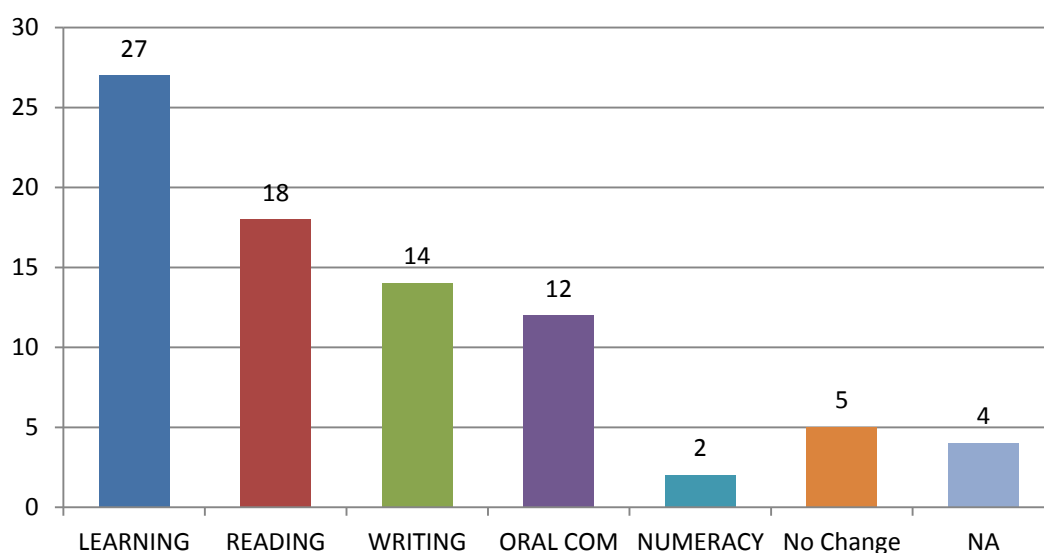


Source: Enterprise A WELL Program

This was the core skill area that demonstrated the least change. Prior to the training there were 17 participants below level three and 15 after the training. For those participants at level three or above there was no change – both are 13.

In addition to consideration of the group results the following results were achieved by individuals in total.

Figure 5.6 Enterprise A – Total Number of ACSF Level Changes



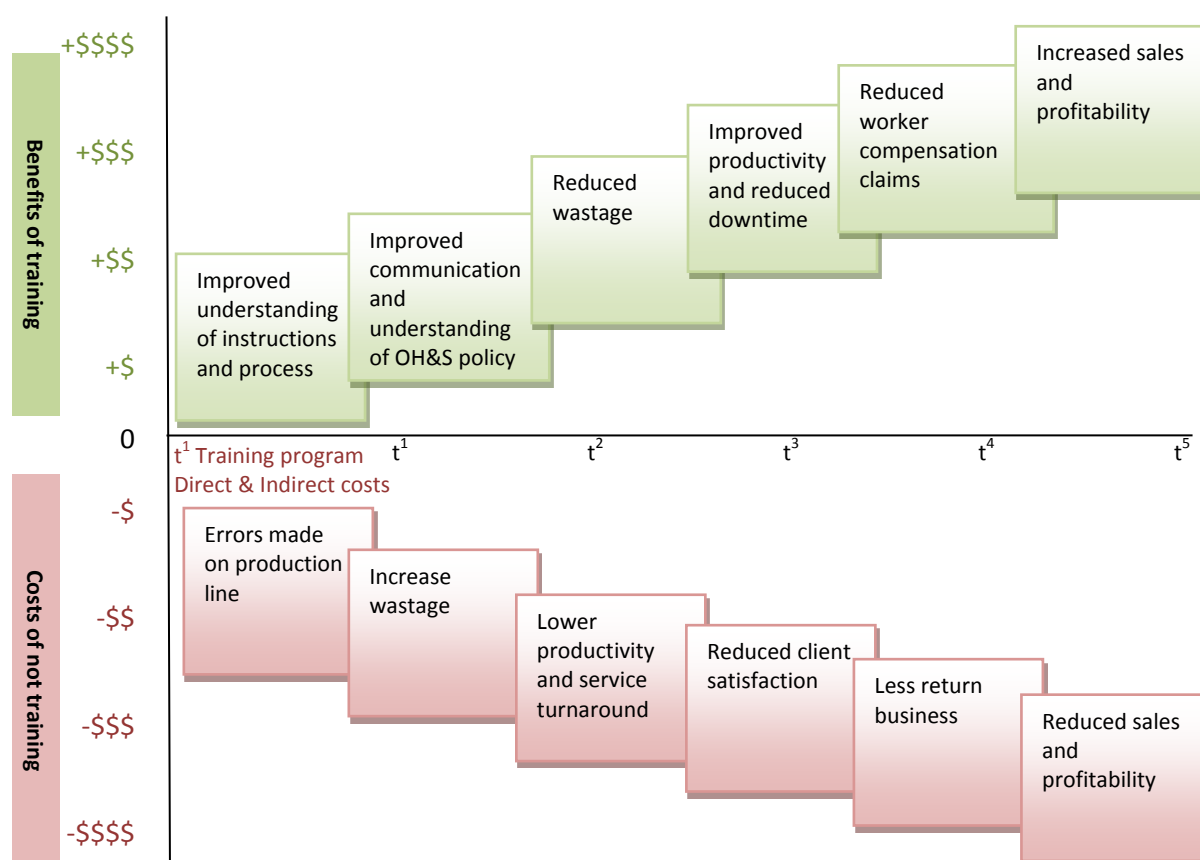
Source: Enterprise A WELL Program

These results indicate that the core skill of Learning produced the greatest number of individual changes (27) and Numeracy produced the least (2). Overall five individual participants did not achieve a level change in any core skill and four were not assessed after the training as their pre-assessment results were pre-level one.

Using a “matched plant” approach, the enterprise can point to another site in Queensland which is more technologically advanced and has lower cost base but currently less effective than the NSW site where the WELL and vocational training program is operating. Enterprise statistics show that the NSW site is a lower cost producer than 12 months ago, with no change in technology. Recent workers compensation statistics show major improvement which reduces cost to the community as well as to the enterprise. Workers now understand safety and the WH&S measures work – “now they advise us of issues and we fix them – before this did not happen”. The level of workers compensation at the Queensland site is ‘huge’ despite that factory being more technologically advanced than the NSW plant. There are a range of reasons for these findings – as described in earlier chapters – but NSW is considered more cost-effective even allowing for other factors “because they [the workers] get it [Lean Manufacturing]”.

Figure 5.7 shows a scenario under which LLN training is or is not offered to a workforce in the manufacturing sector based on the experiences of Enterprise A. There is an evident “knock-on” effect which could logically produce significant benefits or costs to the enterprise.

Figure 5.7 Enterprise A – Exemplar scenarios in the manufacturing sector



At Enterprise A the WELL program was delivered concurrently with a Competitive Systems and Practices qualification (lean manufacturing) to all of the employees by the same trainer and RTO. It is accordingly very difficult to isolate the benefits of each training program separately. Nevertheless, the General Manager at the enterprise indicated that the lean benefits flowing to the organisation could not have occurred without the WELL program. On a previous occasion a lean manufacturing training program was unsuccessfully attempted by itself.

Given this, to calculate quantitative measures, the program costs included the cost of the lean manufacturing program. This was not a significant cost given the government rebate for this program. Program benefits at this site were determined as savings to the enterprise. All of the program benefits are company savings over a year. The company identified four main areas of savings.

1. **Injury rates:** prior to the implementation of training the injury rates were reflected in a WorkCover premium of 5%. After the completion of the training this was reduced to 3.7% which amounts to a saving of \$1,300 per week to the organisation. The Lost Time through Injury (LTI)

measure has been maintained at zero since the training was implemented mid-2013. The WELL contribution to this outcome was increased proficiency by employees completing incident reports and their increased confidence to communicate WHS issues in the workplace.

2. **Energy Savings:** the enterprise has instigated a number of energy saving strategies as a result of the training, such as the installation of sensor lights to save power. Based on the initial savings in recent months the projected annual savings will be \$42,000. The WELL program contributed to this by increasing the communication skills of the employees. It was only through more effective oral and written communication that the employees were able to implement these measures.
3. **Labour Savings:** employees participated in problem solving training. They identified that they were losing production time when forklifts were not available to move raw materials. This was impacting on Units per Hour (UPH) and it had the potential to cause late deliveries. There were also labour wastes associated with waiting for product to be moved. Employees were able to calculate downtime of 316 hours per year. To identify a savings amount this was multiplied by the average hourly wage cost of the employees of \$26 which in turn produces an annual saving of \$8,216. Employees identified the root cause of downtime was poor communication between work groups. They then implemented a new system for communicating priorities between the work areas. This saving could only be achieved as a result of the increased communication skills between floor employees and the fork lift drivers.
4. **Recycling Waste:** reducing waste is a major focus of the enterprise given that it deals with fresh produce. The lean manufacturing training program led to the establishment of a greater range of recycling bins. The increased communication and reading skills delivered through the WELL program enabled this process to be used efficiently. As a result the expense of waste collection for the organisation has been reduced from \$5,500 per month to \$4,000 per month with a projected annual savings of \$18,000.

These calculations are summarised in the following table:

Table 5.2 Enterprise A – Estimated Return on investment

	Program Costs	Amount
1	Employer contribution to WELL Program	\$10,000
	Staff Labour Costs for employer [staff paid to attend training]	\$73,000
2	Lean Manufacturing Program [\$85,000 - \$64,800 Government Rebate]	\$20,200
	Total	\$103,200
	Program Benefits	Amount
	1. Injury Rates [WorkCover premium reduced from 5% to 3.7% saving \$1,300 per week]	\$67,860
	2. Energy Savings	\$42,000
	3. Labour Saving [more efficient practices saved 319 hours pa @ cost of \$26 per hour per employee]	\$8,216
	4. Recycling Waste [less waste saving of \$1,500 per month]	\$18,000
	Total	\$136,076
	Return on Investment	
	Program Benefits/Program Costs x 100	

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	$\$136,077/\$103,200 \times 100$ 131.8%
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Source: Enterprise A WELL Program

The ROI of 131.8% is understated given that it excludes the flow-on effects to production of efficiency gains which are substantial but not reported due to commercial sensitivities.

The results of training within this enterprise are uniformly positive. The site manager believes that: *“if I didn’t have the WELL program, there would be zero opportunity to reduce my cost base”*. The employer believes that without WELL as part of that approach:

“We couldn’t have any productivity gain without the training. Training is a benefit - WELL and employability skills all come into it, but not WELL in isolation.” General Manager

Combining WELL with a Lean Manufacturing model was seen as an opportunity to improve the cost base and improve productivity. The perspective of this employer is that Lean saves money but workers need language to understand the concepts of the Lean approach. Productivity improves because staff are engaged. The observations are that “they think about what they are doing, and care about it”¹⁸.

Overall:

The employer recognises that it is very difficult to quote a dollar value and that outcomes are generally more qualitative. They say that it can be difficult to convince directors that training reduces costs by a specific amount.

“I’ve got to justify investments in productivity and efficiency”.

The training is also valued as the efficiency dividends wherever possible are reinvested to drive further growth and profitability. Twelve years ago the company had one site, now it has six sites in three states.

The employer sees a need to position WELL, and programs like it, as “a way to support your staff not about a direct cost saving”. The employer believes it is important to focus on areas of business and design the training around that need – in this case the support of a labour productivity program. The employer believes that there is a “multiplier effect” as “I get such a much better outcome’ [by adding WELL to LEAN].

Among the many mediating factors described in earlier chapters is the quality of training and the trainer involved. This enterprise found that “the trainer is the key”. The suggestion of training frameworks and matrices can benefit management to “shine light on gaps”. The production manager has mapped knowledge and skills for each staff member.

“it will improve productivity [but] it’s a longer term strategy to improve workforce engagement – productivity increases because staff are engaged”. General Manager

¹⁸ Refer to Core Skills for Work ‘Work with roles rights and protocols’ - this registers as shift from Stage1 to aspects of Stage 3.

5.2. Enterprise B - “Improving documentation to enhance organisational culture”

Location: South Australia, north-metropolitan suburbs

Industry sector: Health and Community Services - Residential Aged Care

Description of employer and its workforce:

This organisation provides a mix of high-care and low-care services, a dementia unit and a series of independent living units catering to around 63 residents. The site is part of a nationwide chain of aged care facilities.

Description of program:

The training program operated from January 2013 - January 2014. It was delivered over 238 program hours to 40 employees. The program has been well-received and supported by management.

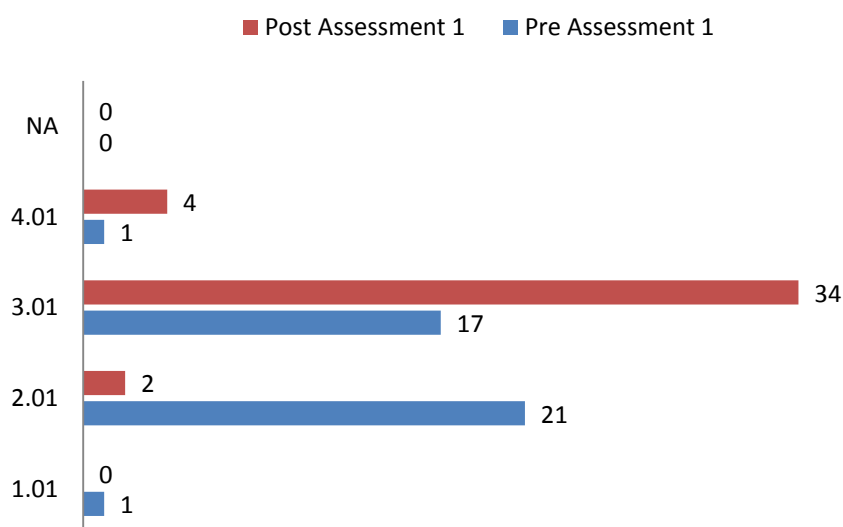
The focus of the program was to have coverage of supervision and responsibilities; standards of service delivery; workplace culture; open communication; and worker performance.

Results:

There have been both qualitative and quantitative results from the WELL program. In terms of immediate benefits for the employees the Australian Core Skills Framework (ACSF) results indicate areas of improvement. All employees were assessed before and after the training across the four main skills of learning, reading, writing and oral communication.

Figure 5.8 Enterprise B – Learning Core Skills

Indicator Description: Active awareness of self as a learner, planning and management of learning



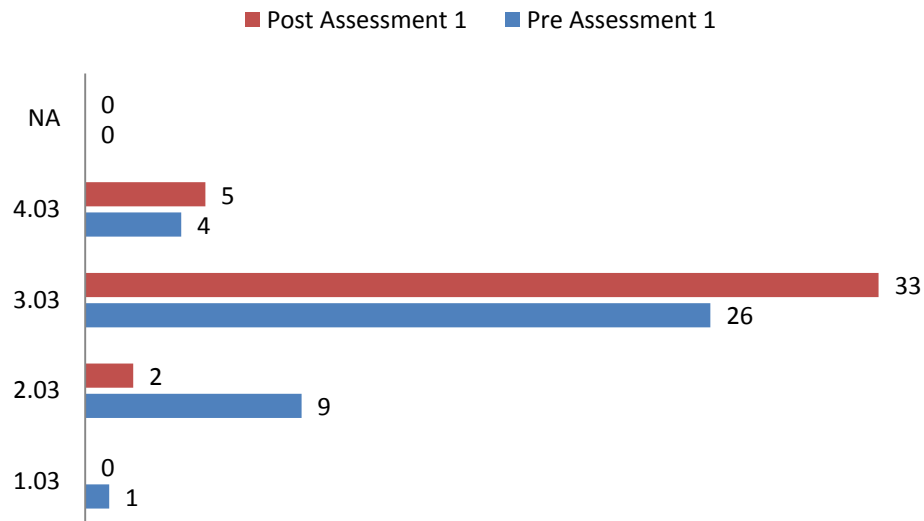
Source: Enterprise B WELL Program

The key improvement is the significant movement of 17 individual performances from level 2 to level three and a slight expansion at level four. Prior to the training there were 22 assessments below level three and after the training there were only two. This means that 38 out of the group of 40 are now at ACSF level three and above.

Figure 5.9 Enterprise B – Reading Core Skill

Indicator Description: Audience, purpose and decision-making

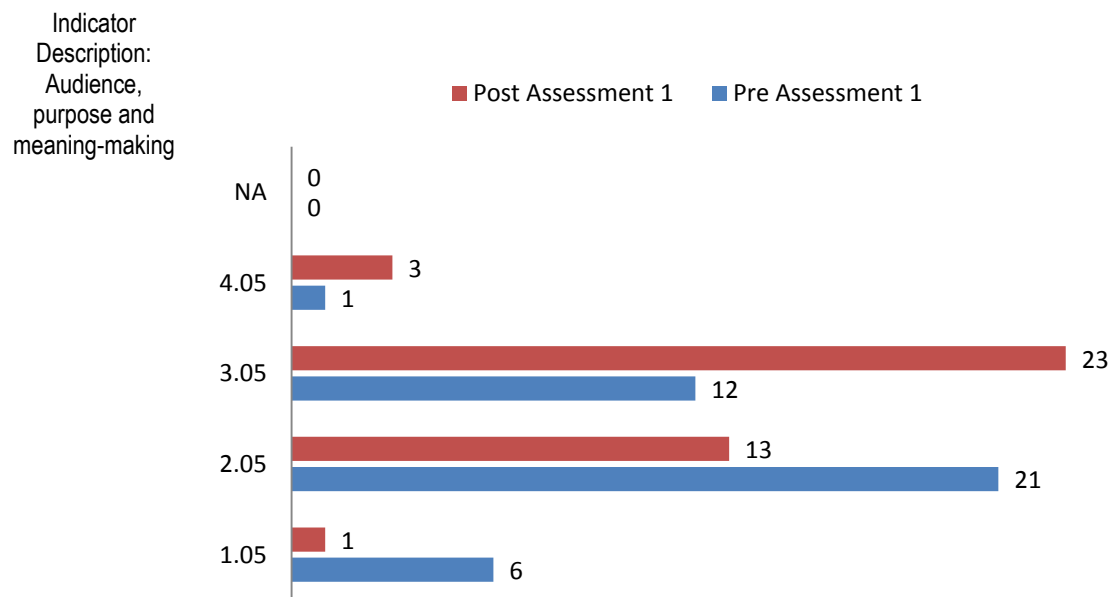
Investing in Workforce Literacy Pays



Source: Enterprise B WELL Program

Prior to the WELL training there were 10 participants below level three and this was reduced to only two after training. Once again there was significant movement in assessments from level two to level three. The group was relatively strong in reading prior to the training with 26 at level three. After training 38 out of the group of 40 were assessed at ACSF level three or above.

Figure 5.10 Enterprise B – Writing Core Skill

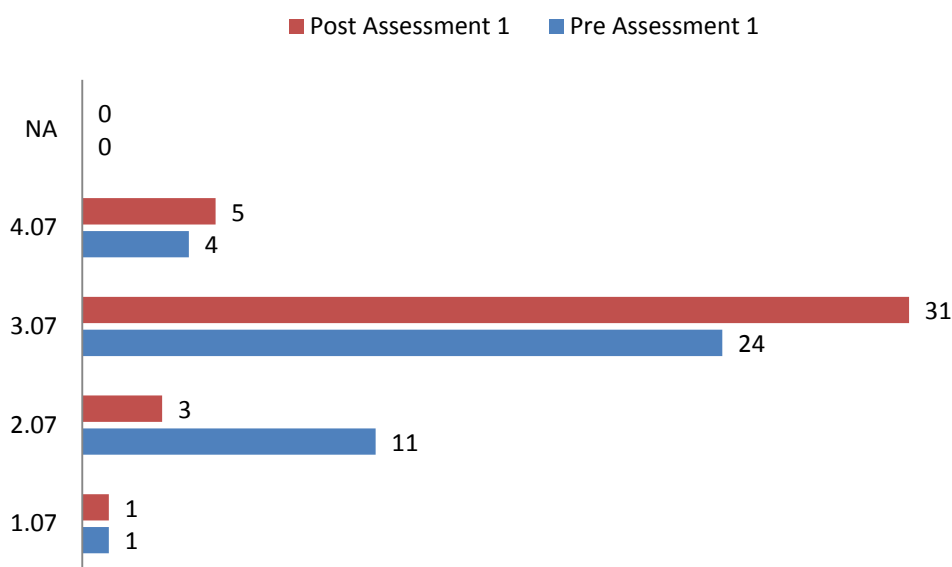


Source: Enterprise B WELL Program

The improvement in the writing core skill was less dramatic than other areas. Prior to the training there were 27 assessments below level three which was reduced to 14 after the training. In total, 26 out of the group of 40 have been assessed at ACSF level three and above.

Figure 5.11 Enterprise B – Oral Communication Core Skill

Indicator Description: Speaking



Source: Enterprise B WELL Program

In relation to the final core skill there were 12 assessments below level three prior to the commencement of the training. This was reduced to four following the training. There was a relatively strong performance of 24 at level three prior to the training. Overall some 36 out of the group of 40 have been assessed at level three and above.

Since the WELL training program carers' data entry speed and accuracy has improved when entering information as validated by the Clinical Nurse Consultant (CNC). Aged Care Funding Instrument (ACFI) documentation has improved in terms of accuracy - this is vitally important as it is linked to funding and service provision.

Since the training commenced, carers more regularly access and read progress notes. They have a better understanding of what is required for reporting purposes. Their notes show improved accuracy and brevity. Carers are showing a greater understanding of cultural diversity and there is an observed reduction in anxiety between staff. There have been no cultural based incidents since the training. The team work between staff has improved as they have been supportive of one another in terms of learning about progress notes.

The CNC observed on many occasions while on duty that the staff's teamwork has improved, with communication between staff being less tense with the better understanding of cultural differences.

"With good communication and teamwork this benefits not only the staff, but ultimately our residents, with the best possible care being provided" - Clinical Nurse Consultant

As a result of training, the Supervisors gave their full support to assisting the carers if required with progress notes.

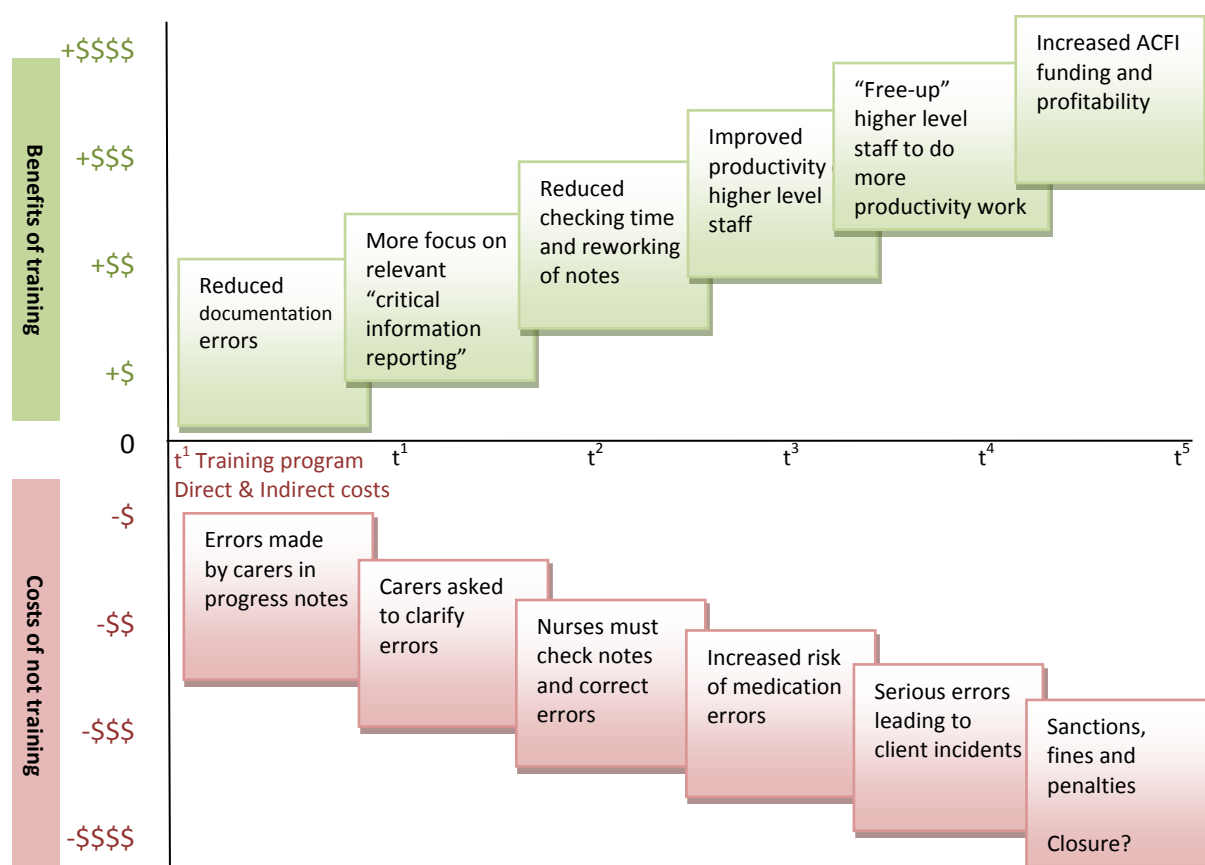
WHS is not the primary focus of this WELL training program, but improvement in core skills has resulted in overall improvement of WHS reporting and documentation. There is evidence for this in observations of more accurate reading and reporting of information relating to the health of the residents and reporting of what is observed by carers. Overall, with improved team work, more efficient reading of the progress notes (staff understand what may/or may not be required for the resident care needs when reading the progress notes), the staff have become more resident-focused rather than task focused, which improves the safety of both staff and residents - "they are no longer working to the clock".

Senior staff members have noticed greater accuracy and hence less of their time is required to correct omissions and mistakes. Carers better understand the importance of reading progress notes when coming on duty and following any directions within them as demonstrated by their increased compliance in reading the notes prior to shift. The carers see the importance and value of reading and writing

accurately in order to provide high quality care. There has been a reduction in the number of grammatical errors that are in each progress note written by the carers. This is because they have learnt how to reduce sentence complexity to be more grammatically accurate. The carers also are being more supportive of one another in how to write the notes. Management has noticed greater accuracy and hence less of their time is being used to correct omissions and mistakes.

Figure 5.12 shows a scenario under which LLN training is or is not offered to a workforce in the aged and residential sector based on the experiences of Enterprise B. The link between accuracy of documentation and the introduction of “health literacy” has a direct “knock-on” effect in terms of capacity to call on Aged Care Funding Instrument (ACFI) funds – a vitally important source of funding. The corresponding decision to not offer training, when taken to an extreme, could result in dire circumstances for a service provider in this sector if there are widespread issues with language, literacy (including health literacy) and numeracy.

Figure 5.12 Enterprise B – Exemplar scenarios in the aged care sector



There is a focus through WELL on “critical information reporting” so as to reduce the use of extraneous or descriptive language by carers which does not assist the nurses with their role. The documentation of irrelevant language and information can add little value but add considerable labour costs. The training has also assisted carers to understand their role within a wider organisational process which can enable more efficient use of time and reduced need for supervision - “they understand why it’s ready and what they need to do as a result”.

In terms of awareness of job requirements and work procedures, “participants have stated an increased understanding of documentation requirements to meet accreditation standards”. The number of documented errors has reduced significantly. Staff identified that they feel more confident in completing the Progress Notes documentation, but this will be followed up with additional training. The small groups indicated that they felt more confident about the writing requirements and demonstrated the ability to support and mentor other members of the team who were not as confident or skilled.

Table 5.3 shows the results from improvement in supervision labour costs. These changes come as a result of improved documentation skills among carers which result in fewer hours among higher level

nursing staff to correct and rework. Management initially took 20 mins to read and correct the notes of 6 carers and after training the time spent was 5 minutes. Prior to training, the average time taken was 5 minutes by the carers compared to 2 minutes for each carer after training. This is a substantial time saving when multiplied by the number of carers (currently around 30). The resulting ROI from these micro time changes, converted to hours and monetised with staff wages, is 117.5 percent.

Following the training on 'documentation', and reading progress notes, the CNC found there has been a reduction in corrections required by management, which equates to a saving of 30 minutes each day of the management team's time. One of the interesting changes in Core Skills was the difference in attention paid to spelling. When the program commenced many of the participants used the excuse I am a poor speller and that is why there are mistakes.

At the end of the WELL training in writing and spelling program the participants were checking their own spelling and some had started to make lists of key words that they would use often. The positive was that they were now more supportive of each other and were willing to check if they did not know rather than leave mistakes. The oral communication skills of the participants also showed improvement as they more clearly explained "what happened" conveying key information concisely.

Table 5.3 Enterprise B – Employer Benefit: labour cost savings post-training

Labour cost savings benefit		Before (or near) start of training	Directly after training finishes	6 months after training finishes	Change directly after	Change 6 months after
	Hours supervisors work with trainees					
A	Number of supervisors	1	1	1		
B	Hours per group	9.3	2.8	2.8	6.5	6.5
C	Supervisor wages	\$50.60	\$50.60	\$50.60		
AxBxC=D	Labour costs (supervisor)	\$471	\$142	\$142	\$329	\$329
E	Number of groups	4	4	4		
DxE	Labour costs (supervisor) x groups	\$1,882	\$567	\$567	\$1,316	\$1,316
	WELL trainees complete key tasks					
I	Hours to complete documentation	17.5	10.5	7	7	10.5
J	Trainee wages	\$33.10	\$33.10	\$33.10		
IxJ=K	Costs	\$579	\$348	\$232	\$232	\$348
L	Number of trainees	30	30	30		
KxL	Labour costs (worker) x # trainees	\$15,640	\$9,384	\$6,256	\$6,256	\$10,440
M	Annual cost savings				\$7,572	\$11,756

Employer Costs

	Project costs	\$
	Total Project costs	\$35,576
	Commonwealth funding under the WELL program	\$27,676
	Employer contribution	\$7,900
	Additional costs to employer, including in-kind, for WELL program	
	Cost of additional staff to support training (e.g. Operations manager)	\$1000
	Expenditure on training materials (e.g. computers, printing)	\$80
	Expenditure on program development/customisation	\$1000
	Other, please identify: Photocopying	\$25
N	Total employer contribution	\$10,005

M/N (%)	Annualised Return on Investment (ROI %)	117.5%
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5.3. Enterprise C - “Reducing supervision time and improving quality”

Location: Victoria, outer metropolitan Melbourne

Industry sector: Manufacturing, industrial detergents

Description of employer and its workforce:

This enterprise manufactures and supplies industrial detergents. In 2007 the enterprise became part of a larger US company with a workforce in excess of 60,000. A range of industries are served including mining, food processing, engineering, hospitality, health care, transport maintenance, materials processing, manufacturing and commercial laundering.

Description of program:

One of the smallest WELL projects in Australia at the time, this training program was delivered to just 5 participants. Most have had a limited formal education and are of non-English speaking background with first languages including Spanish, Indonesian and Italian. There had previously been problems observed on the floor where workers had trouble understanding each other when speaking in English due to vocabulary and pronunciation difficulties.

LLN issues impact throughout the plant affecting employees across a range of job roles including supervisors, technical staff and production personnel. Oral communication issues include communication breakdowns with colleagues due to limited English language skills. Evidence from the workplace indicates that the target group requires the development of language, literacy and numeracy skills associated with: effective communication within teams and between departments; effective communication with external customers; LLN skills development so that information is understood and accurate records are kept.

The employer's goals are to improve the company and technical language use of employees so that communication is more effective so as to avoid misunderstandings which may lead to mistakes in the production area. Improvement of written conventions and communications (emails, job sheets, worksheets, toolbox) were required so that incomplete and unclear information is reduced.

The training was conducted in line with internal training undertaken by the company in new and improved processes. Training sessions focused on each participant's skills and knowledge and used these as a medium for development of communication skills such as speaking (explaining the processes), writing (instructions, emails, toolbox) and using computers, thereby improving IT skills (also required by the company) at the same time.

The Human Resources Manager responsible for managing the training program admits she ‘didn't even know about WELL until she [the trainer] told me’. There have been two WELL projects offered with the same trainer for both. The first was considered a trial to see how it would go and ‘sell’ it to management. Management saw results and could see it needed to continue. The Operations Manager observed that “after the first, everyone wanted to do another”. The first project focused on relevant LLN and the second was conducted on the floor with a focus on computer skills, job cards and participation in ‘Toolbox’ meetings.

LLN skills are assessed by the trainer against the ACSF. However, the Human Resources Manager sees these scores as ‘only part of the picture - [there are] also individual, social and community impacts’ which should be considered alongside the economic impacts.

There have been issues with low self-esteem and self-confidence in the past. There was some resistance from the Operations Manager in that they were reluctant to conduct a second program “we can't do this – we can't take people off the floor – we don't have enough staff”. Since the training that manager is now fine with WELL and sees it as useful. There is also a new sense of “confidence and camaraderie” and an “energy on the floor” which is assumed to have the downstream effect of improved productivity. The Human Resources Manager believes ‘they are a lot happier and are seen to be working better’. One participant is considered a ‘shining light’. She has expressed an interest in understanding weights and measures – “Why do we fill a bottle to here?” As a result of this training, the participant ‘keeps asking, [and] wanting to learn more, [and] now does numerical puzzles in her spare time’.

In terms of training volume, the trainer met with the group every fortnight for a whole day. The trainer spent time with each individual followed by a group session. A particular task involved the participants learning how to take a photo of a machine and write instructions in steps. The participants then

laminated these and put them up on site. The Human Resource Manager believes that 'four years ago they couldn't or wouldn't have been able to do this'.

Results:

The results from this project are largely qualitative benefits for the participating employees and subsequently for the enterprise. The Human Resources Manager can point to day-to-day examples of progress by all participants. This leads her to think that the program is 'really good and powerful':

"I know it's working!!". There are cost savings but [they] can't measure it and control for all the other factors. Instead, it's easier to report that "they were doing this [before], now they are doing this". - Human Resources Manager

The Supervisor on the floor now says "the place runs itself. I don't have to worry". But she "can't stand there with a stop watch" to monitor changes in productivity and efficiency. Individuals are taking initiative, taking on greater autonomy so there is an assumed cost saving.

"It was about getting them to work together, the productivity follows from that" - Operations Manager

It has been more difficult to determine any measurable quantitative benefits for the enterprise. The Supervisor does not have to keep checking on the workers and reports a big time saving but cannot quantify the amount with any precision. Working in industrial detergents, accurate weights and measures are critical - some workers used to underfill/overfill and made errors. The floor supervisor used to have to make sure they selected the right ingredients and put the right amounts in every time.

The Core Skills for Work (CSfW)¹⁹ tool can offer further insights into an individual's performance in the five core skills of learning, reading, writing, oral communication and numeracy. When matching the skill gains against the levels of the CSfW framework, the participants in Enterprise C are now:

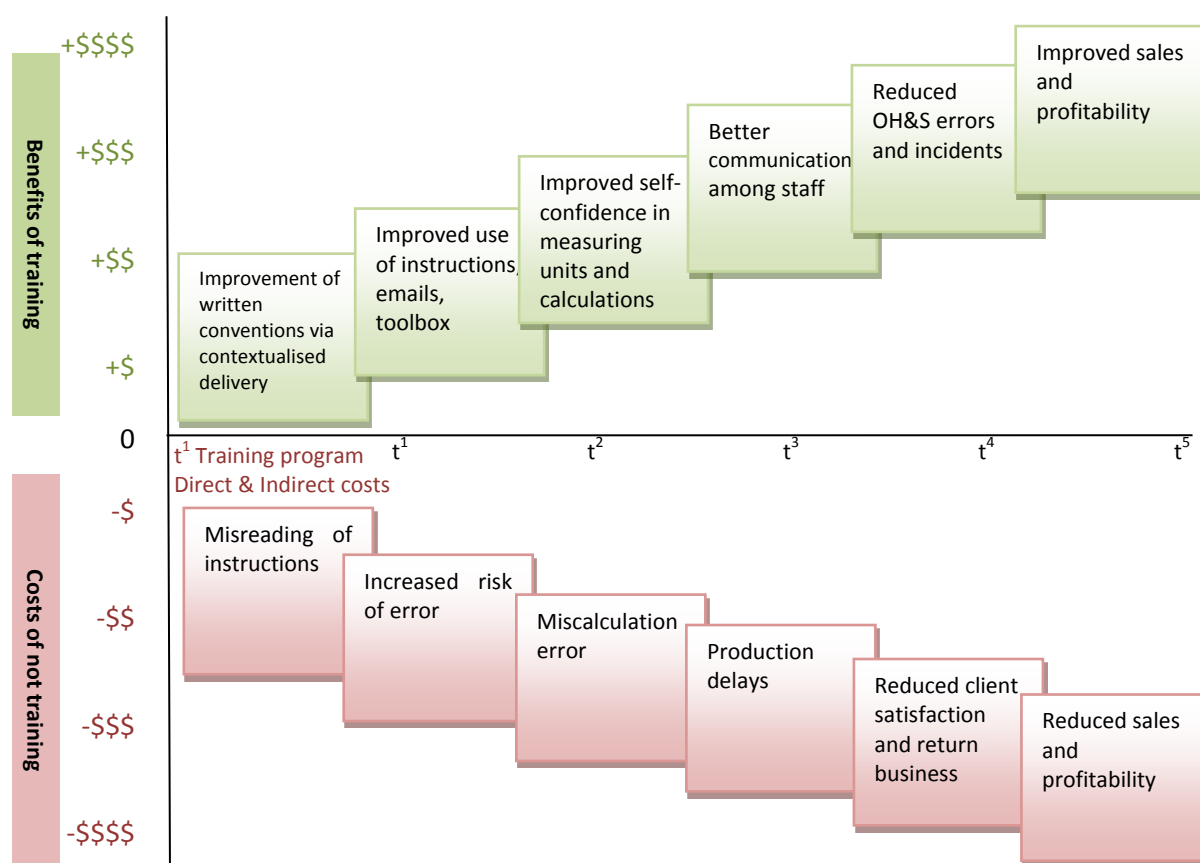
- trying to learn more (CSfW 1a) ;
- seeking advice from others – a technical manager is an ex-maths teacher who is assisting participants with questions they have (CSfW 2b);
- covering for each other - not just for WELL time (CSfW2b and 3a) ;
- doing homework in lunch breaks (CSfW 1a) ;
- talking, socialising and building relationships more since breaking down of some language barriers - they now talk about the weekend, footy (CSfW 2b, 2c) ; and
- not waiting to be told what to do but now taking initiative e.g. when working with the blender they used to delay preparation until next lot, but now they get the ingredients ready and select the correct ingredients and amounts (CSfW 1b, 3c).

Whilst the training has supported employees in moving to more varied workloads and therefore increased skills, the company is small and opportunities for advancement are limited.

Computer and associated literacy skills development has resulted in employees being able to use updated computer programs in their work, e.g. 2 employees can confidently use the computerised customer job order system and others access the company's internal sharespace for MSDS documentation. Writing skills have developed; employees have documented their own work instructions. There are increased reading skills, particularly in the context of the MSDS safety information. Employees have developed a greater understanding of their roles and are taking on broader multi-task work. Anecdotally, morale and attitude has improved with increased confidence and employees are receptive to more learning.

Figure 5.13 shows a scenario under which LLN training is or is not offered to a workforce in the manufacturing sector based on the experiences of Enterprise C. The link between the more intangible measures of 'improved self-confidence', 'improved capacity to take on more autonomy' and 'improved understanding of instructions' feature highly in this example. The training brought about changes to workplace culture which reduced issues of 'hesitation' and 'resistance' and enabled a more free-flow and exchange of ideas and communication and workers. These more intangible benefits have logical downstream benefits in terms of improved productivity of more senior members and staff (and their time) and the resulting impact on sales and productivity.

¹⁹ <https://www.education.gov.au/core-skills-work-developmental-framework>

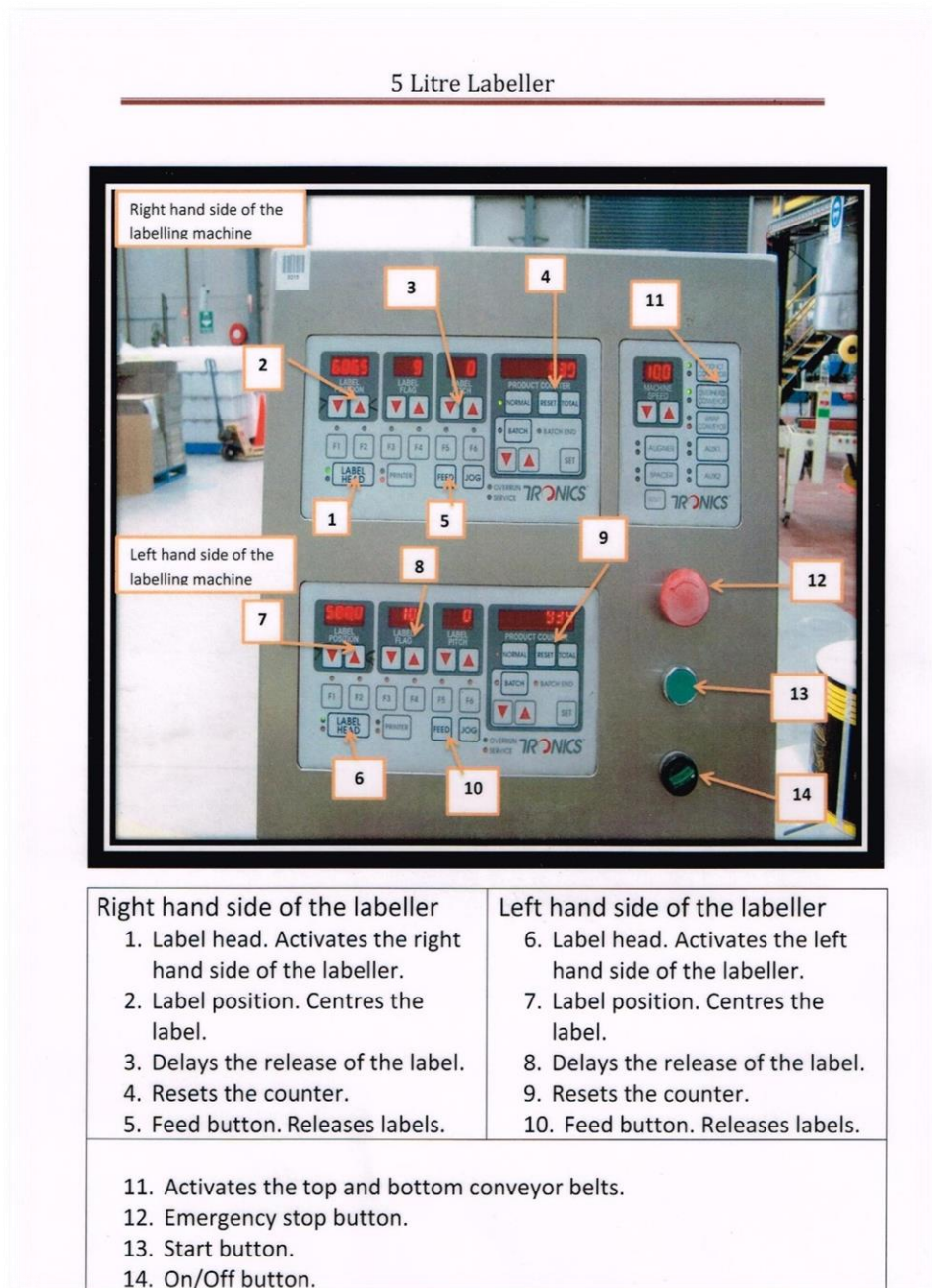
Figure 5.13 Enterprise C – Exemplar scenarios in the manufacturing sector

The Human Resources Manager sees management commitment as a key ingredient for success. WELL, and programs like it, need to be seen as part of broader strategy. LLN “support is not a silver bullet in its own right”. The trainer was viewed as “critical and success is ‘all part of [the trainer] being here’ who has built a good rapport with the training group on an individual and group level.

This enterprise recognises that gains are made over time and the way the second program built on the first. This ‘meant we now have systems in place so the second program was easier to run’. The close relationship and implicit understandings with the trainer meant that even more gains could occur.

Participants were able to develop operating instructions for various machines as a result of the WELL training. An illustration of this is shown below (Figure 5.14). The Human Resources Manager has indicated that this would not have been possible without the WELL training.

Figure 5.14 Enterprise C – Operating instructions for “Litre Labeller”



5.4. Enterprise D - “Supporting workforce engagement and advancement”

Location: New South Wales, Sydney

Industry sector: Building and construction

Description of employer and its workforce:

A large, international organisation in the building and construction sector, Enterprise D works across development, investment management, project management and construction, and asset and property management.

Description of program:

A large-scale construction project, Enterprise D has coverage, at the peak of its operations, of around 2,000 construction workers on-site. Large numbers of employees are able to access the LLN training offered at the skills exchange.

Table 5.4 Enterprise D – Program Participants

Numbers of Employees	Stage 1: July 13 – May 14	Stage 2: June 14 – Nov 14
Numbers pre-assessed	312	716
Numbers in vocational courses	365	598
Total number one-on-one training sessions	168	207

This exchange was established in 2012 to deliver and report on all aspects of skilling, training and research during the construction phase. The enterprise is working with a large TAFE to provide the assessments and deliver the WELL program across the targeted parts of the workforce. The WELL program implementation involves workers who are being assessed and enrolled and supported through training on a continuous basis. There is no “fixed cohort” so it is difficult to measure improvement other than on a case by case basis.

A key driver behind the skills exchange dimension of the Project is the delivery of:

“English language, literacy and numeracy skills training to ensure workers can effectively operate in their chosen occupation and also to support all learning associated with the Project”. - Program information supplied by Enterprise

Employees are pre-assessed to identify LLN skill deficits which could impact on their participation in vocational training and their job LLN requirements. Training and assessment is arranged in close collaboration with supervising staff and provided in a timely way to meet immediate needs. The method of training is either team teaching, small groups or individual one-on-one tutoring to focus on their individual needs and goals. A specialist language, literacy and numeracy teacher is based on site full-time, and available to assist any workers.

The training model is a mixture of support of basic core LLN skills and digital literacy for participants who are undertaking vocational, licence and mandatory training such as:

- Dogging
- Welding
- Forklift
- Leadership
- Confined Space
- Environmental Health and Safety Passport
- Working at Heights Awareness
- Elevated Work Platforms
- Power Tools
- Perform manual heating and thermal cutting
- Scaffolding

The Enterprise believes:

“The prime driver for training is the health and safety of the workers. Managers, employers, workers, unions and training providers are all working towards the same goal of the site being incident and injury free”. Manager Community and Social Strategy

The on-site skills exchange “hub” is a distinctive feature of this program. Wherever possible, training is conducted on site, in effect, coming ‘to the worker’, either on the job or in the purpose built training facility, which is readily mobile as the site develops. All training is contextualised to job roles, enabling workers and their employers to receive a fast-track benefit from their investment in training. In every case, employers and employees are consulted about a training program being undertaken to ensure it responds to operational needs.

Qualitative Results

The skills exchange places considerable importance on preparing workers to better perform their roles and progress into more technical and senior roles. The Health and Safety Manager for Enterprise D observes that:

“The construction teams and the [skills exchange] staff have developed a close working relationship, in which all construction workers feel free to participate in their own skill development regardless of challenges such as language, literacy, numeracy or age”.

Health and Safety Manager

The intangible aspects of increased self-confidence, pride and aspirations also feature highly among the enterprises values. The Enterprise states that it is “supporting workers (particularly from non-English speaking backgrounds) with basic skills such as literacy, numeracy and computer skills making them better able to participate in everyday life skills, including being able to help their children with homework and reading correspondence”. In regards to WHS, the enterprise is “providing training in response to workplace incidents, to develop the skills and knowledge required to avoid similar incidents in the future”.

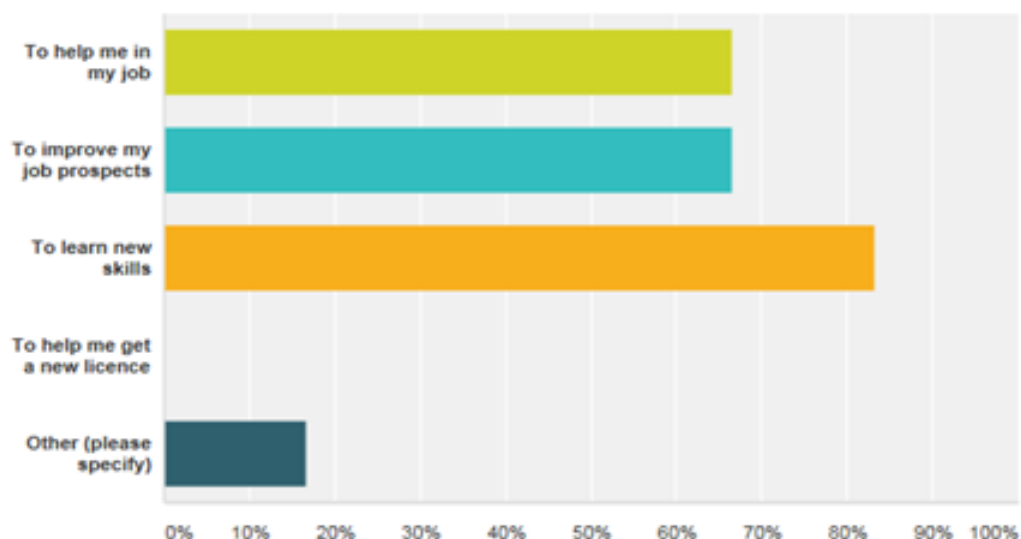
“Many of the workers undertaking training would normally never attend TAFE or other formal institutions. However, with literacy and numeracy services available on site the learning journey is a supportive one, with workers undertaking training for national qualifications, safety, wellbeing, and preparation for WorkCover licenses.”

Manager Community and Social Strategy

Employees surveyed both formally and informally have indicated that the training is exactly what they needed to pass assessments, complete vocational training and to function more effectively in their job.

In the survey employees were asked the reason why they undertook the training in the first place and whether the training allowed them to achieve their work and personal goals. It asked what specific help they required and they were asked to rate their overall satisfaction with the LLN assistance.

Figure 5.15 Enterprise D – Survey responses: “Why did you undertake the training?”

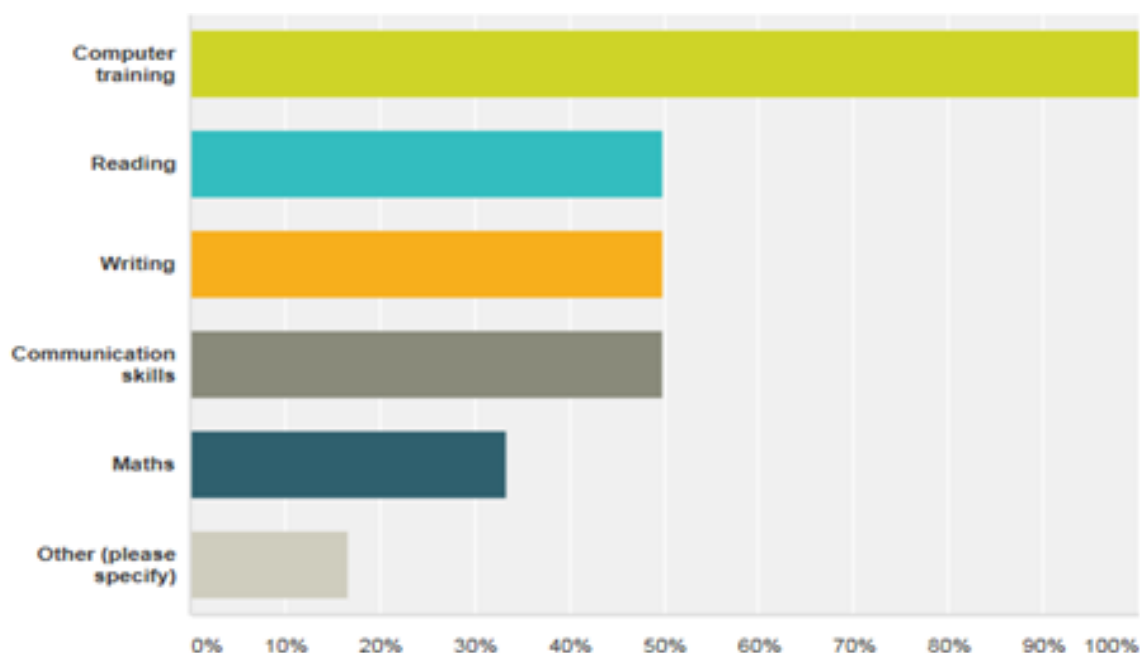


Source: Enterprise D WELL Program

All employees indicated in the survey that they achieved their identified goal.

The employees were asked about the kind of assistance that they accessed. All participants undertook computer training while half of the group also identified reading, writing and communication skills as key areas of support.

Figure 5.16 Enterprise D – Survey responses: “What specific help did you require to achieve your goal?”



Source: Enterprise D WELL Program

In addition to these surveys the Enterprise has described the journeys of individual workers who have become involved with the skills exchange. For example, Worker A is 22 years old and until recently was a casual worker. He arrived in Australia at the age of 8 from Cambodia unable to speak or read English. He says “before starting with the [the skills exchange], I was really bad with my reading and writing. I got help with my English and maths in order to be able to apply for an apprenticeship. Before studying with the [skills exchange], I wouldn’t have even considered applying, my English and maths just weren’t

good enough.” “Now my reading and maths have really improved thanks to the [skills exchange]. I applied and was one of eight (8) successful people out of more than 200 applicants.”

Worker B has worked for Enterprise D since he arrived from Greece in 1987, and for the last 3 years has been working in maintenance and site cleaning. Due to his limited English literacy and numeracy skills, Nick has been unable to perform some aspects of his role such as ordering and stocktaking. The [skills exchange] worked with Worker B and his supervisor to assess his training needs, and after undertaking English and Maths tutoring at the skills exchange, his skills increased to the point where he is now able to fulfil all aspects of his job role.

Through the skills exchange, Worker B has also achieved his first qualification, completing a Certificate 1 in Construction, and has also undergone First Aid training. He believes this was made possible because the skills exchange was on-site and he did not have to take time off work. Not only does Worker B feel more “professional” in his duties, but outside of work he feels proud of his achievements and that his children can be proud of him.

To reduce downtime, and its associated costs and inconveniences, learning times are scheduled to suit the work hours of the worker, often maximising use of before and after work, lunch times and “down periods” during construction.

Quantitative Results

Enterprise D has only limited capacity to capture, in quantitative terms the impact of the LLN training intervention. They have been able to establish the cost. These costs are in addition to the employer contribution to the cost of the WELL program.

Table 5.5 Enterprise D – Budget Expenditure

Budget Items	Estimated one off \$ cost	Yearly cost
In kind expenditure		
Provision of onsite training sheds x 2	200,000	
Power and amenities		10,000
Catering		12,000 (@\$250 per week)
Office furniture	5,000	
Stationery and photocopying		5,000
Time in project planning, liaison and meetings		3,000
Total In Kind	205,000	30,000

Source: Enterprise D WELL Program

The enterprise is a large complex and inherently high risk workplace. It is therefore understandable that much of the training is related to employees undertaking WorkCover licences such as Dogging, Elevated Work Platform and Power Tools. The Enterprise has been able to determine the costs and benefits in relation to one aspect of the overall WELL program – the WorkCover assessments. The independent WorkCover assessment is a rigorous process with a high fail rate e.g. in NSW the average first attempt rate is sitting at 54%, meaning that on average almost half the employees have to be re-tested at significant expense. Some of the courses have critical aspects which have to be answered correctly. Failing any one of the critical aspects means an instant fail in the overall test. E.g. Dogging has 90 questions and approximately two thirds are critical questions.

The WELL teachers prepare employees for these assessments by tutoring them in the written and numeracy skills required to complete the designated tests. Since the implementation of the WELL program the result is a 90% pass rate for a first attempt at a WorkCover assessment. This is well ahead of the NSW average of 54% and as retesting is an expensive undertaking both in dollar terms and lost time this specific LLN preparation has saved the company tens of thousands of dollars.

The WELL program has assisted employees to pass their WorkCover assessments at a 90% pass rate on their first attempt. This has saved approximately \$192,600 of potential re-sits at the NSW state average. The approximate number of employees who have undertaken some form of WorkCover

assessment since Jan 2013 is 892, so at a 90% pass rate only 89 would require re-testing. The average pass rate in NSW is currently sitting at only 54%, meaning that 46% would require re-testing.

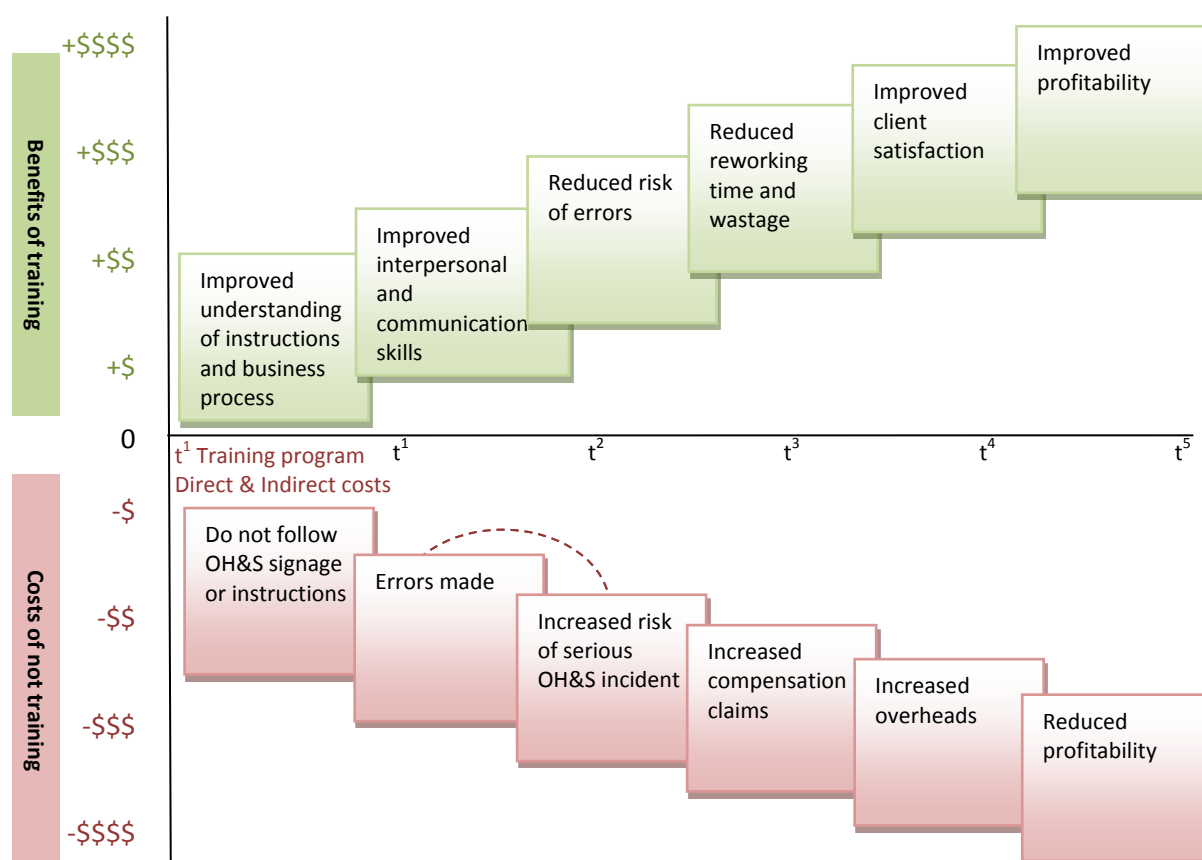
Table 5.6 Enterprise D – WorkCover Assessments Calculations

	Item Description	\$ Amount
1	The cost of WorkCover assessments 892 x \$200	\$178,400
2	The average “lost time” from job for WorkCover training and assessment \$500 x 3 days = \$1500 per person for 892 employees	\$1,338,000
3	The cost for re-testing is \$100 for actual test, plus \$500 for a day of lost time - so \$600 per retest for 89 employees	\$53,400
4	State average of WorkCover re-test statistics of 46% applied to enterprise 410 people @ \$600 per person	\$246,000
5	WorkCover re-test saving for enterprise \$246,000 - \$53,400	\$192,600

Source: Enterprise D WELL Program

Figure 5.17 shows a scenario under which LLN training is or is not offered to a workforce in the building and construction sector based on the experiences of Enterprise D. There is an evident “knock-on” effect which could logically produce significant benefits or costs to the enterprise – particularly in the area of occupational health and safety.

Figure 5.17 Enterprise D – Exemplar scenarios in the building and construction sector



The issue of discerning a causal relationship or attributing change to the training event is particularly evident in Enterprise D. For example, Enterprise D facilitates training in a number of areas all of which may have some tangible or intangible impact of worker performance and business outcomes. Specifically,

- **National qualifications:** largest enrolments in Falsework and Formwork, Work Health and Safety delivered, Front Line Management, Dogging, Work Health and Safety;
- **Short Courses:** largest enrolments in Workplace English Language and Literacy (LLN); Assessment; Elevated Work Platforms Boom Lift VOC; Elevated Work Platforms Scissor Lift VOC; First Aid; Manual Handling delivered by Move for Life; and
- **Awareness Programs:** highest attendance in Suicide Awareness; Asbestos Awareness delivered; Dust and Disease Checks; Skin Checks; and Working at Heights Awareness.

Enterprise D is also making use of new technologies to improve data capture through the use of web-based apps. The app is being used on site by a number of workers enrolled at TAFE. Workers collect and present verified evidence of an activity being undertaken on site for recognition and assessment purposes. Evidence can be collected anywhere, anytime, using a smartphone, tablet device or computer. Evidence is then mapped against the critical aspects in Units of Competency of the qualifications a student is studying which are directly downloaded from training.gov.au. This evidence can be verified by a supervisor, if required, within the app with signature capture available.

This enterprise is particularly interested in the social return on investment more broadly as it is independently audited and published in their accounts. They have a very broad conception of the range of activities that generate a social return - education and training of the workforce is seen as one part.

The large-scale building and construction project has conducted WELL program assessments and trainers for about 380 contractors and staff from the main contractor and a number of subcontracting firms.

They are hoping to help develop a mentoring role whereby those who are more skilled are able to assist those who are less skilled. They are very conscious that they don't want the training to upset the power hierarchy on the worksite. They need to be very sensitive to the age differences among the various parts of the workforce and to some extent the ethnic differences among the workforce. The sub-contractor's employees are not obligated to take training, but through the lead contracting enterprise it will be made available and people will be encouraged to take it up.

5.5. Enterprise E - “Supporting ICT training and improving workplace efficiency”

Industry sector: Tasmania

Industry sector: Electricity, Gas, Water and Waste Services

Description of employer and its workforce:

The enterprise is a major utilities supplier which employs in excess of 900 employees. The workforce is highly dispersed across a large number of plants, water treatment facilities, supply dams, pump stations and sewerage treatment plants. These facilities all require ongoing maintenance and about half of the workforce are outdoor workers devoted to this. Many of this group are former council workers without post-school qualifications and were the target for the WELL training.

Description of the WELL program:

This program operated from August 2013 to August 2014. A total number of 600 program hours were delivered to around 130 - 140 participants. It must be noted that the average number of WELL training time per employee was 5 hours.

The WELL program supports a project designed to develop ICT skills needed for using computer software such as Microsoft Office and specialised databases within the enterprise. The WELL training was delivered one-on-one, ‘just-in-time’, in small groups and in conjunction with other training programs. One-on-one training has been identified by participants as a preferred method



of learning ICT skills, particularly if the employee lacks self-confidence and/or experience with computers.

Pre-assessments showed that 55 percent of employees did not know how to set up a computer (plug in peripherals etc), 27 percent did not know how to navigate the desktop, and 46 percent could not type more than 15 words per minute. Much of the initial training has focused on building confidence for people with no experience in operating a personal computer or using business technologies, such as printers, fax machines and cameras. At project commencement, the specialist trainer

reported some resistance from older employees. To assist their learning, the enterprise provided loan laptop computers for them to take home to practice on.

The training is supporting employees with poor take-up rates for technology to gain the necessary ICT skills to use new or improved business systems. This just-in-time training increases job role flexibility. Just-in-time training also reduces costs eliminating the need to backfill positions whilst people attend training, as well as having greater relevance to participants.

The WELL program targets information and communication technology (ICT) skills development in frontline service delivery personnel (such as labourers, technicians and tradespeople). During the course of this WELL grant, work site coordinators identified business inefficiencies and training interventions were designed to address these. In the site example below, a coordinator was spending excessive time investigating incomplete and incorrect paperwork. The training intervention involved the following steps:

1. Creating awareness of the business process for the service order (or work order) life cycle.
2. Teaching team members how to use propriety software to correctly find job numbers and mark jobs as closed.
3. Providing feedback on errors and how to correct these.

Results:

To arrive at the Return on Investment results, the Enterprise provided the study with a breakdown of costs – as shown in Table 5.7. Importantly, the Enterprise was able to account for some considerable in-kind costs in the form of training materials, program customisation and equipment hire to enable a more accurate depiction of the real cost of the training program.

Table 5.7 Enterprise E – Project Costing

Cost item	\$
Commonwealth funding under the WELL program	\$65,000
Employer contribution excluding additional costs	\$65,000
Additional employer costs, including in-kind, for delivery of the WELL program	
• Expenditure on training materials (e.g. computers, printing)	\$3,000
• Expenditure on program development/customisation	\$2,000
• Other, please identify: Hiring of computers	\$2,000
Total employer contribution	\$72,000
Total Project Costs	\$137,000

Source: Enterprise E WELL Program

The approach taken was to look at isolating a unit of improvement – a reduction in time spend on making corrections at one particular site. This was only one of several interventions across the whole organisation. A single unit improved was measured and multiplied by the average daily salary of coordinators before and after the training intervention. These amounts were then extrapolated over the 3 year time horizon of the project to arrive at an ROI of 102 percent. The full calculation is shown in Table 5.8.

Table 5.8 Enterprise E – ROI calculation from one site

Item	Amount
Program Cost	\$6,000
Program Benefit	
100 Service Orders processed prior to training = 5.8 hours x \$47.50 per hour = \$275.50	
100 Service Orders processed after training = 1.5 hours x \$47.50 = \$71.25	
Total Improvement = \$275.50 - \$71.25 = \$204.25 per 100 Service Orders	
Expected lifecycle for new process 3 years or 3,000 service orders = 30 x \$204.25	\$6,127.50
Return on Investment = \$6,127.50 / \$6,000 x 100	102.13%

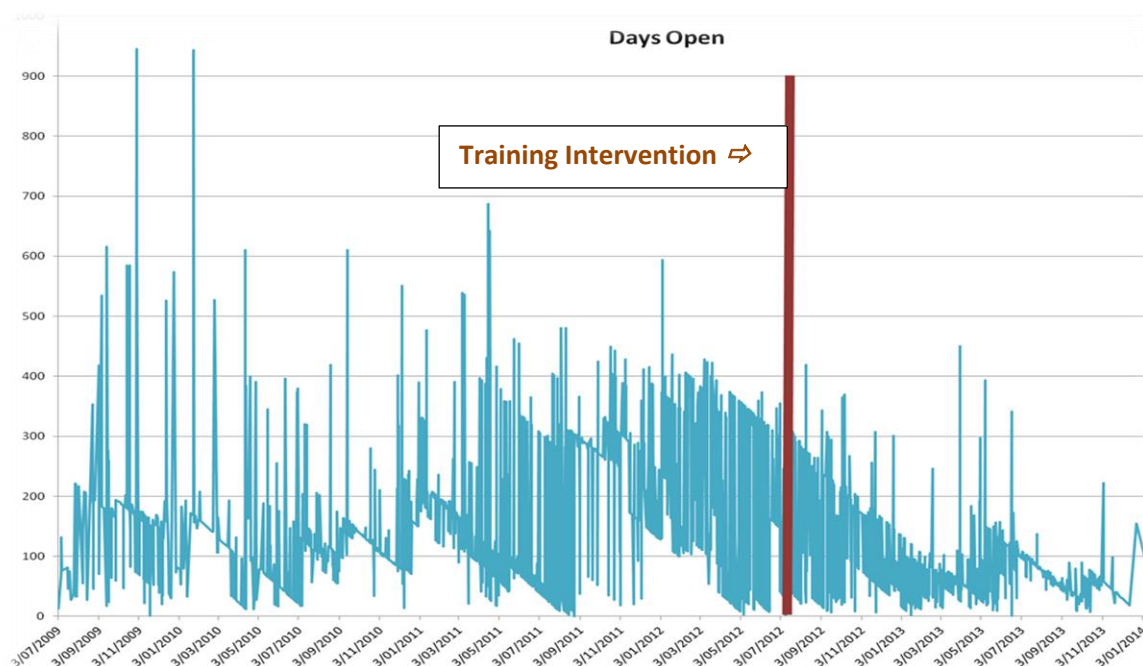
Source: Enterprise E WELL Program

The number of open service orders is a business and team coordinator key performance measure. The ROI results, considered in combination with the trend data on unit service improvements, would indicate that the intervention was highly successful and both the duration of open service orders and the number of errors have decreased.

Figure 5.18 graphs this trend and assists with validating the ROI calculation. The red line shows when the intervention or training program started. Prior to the intervention, the Coordinator and Assistant Coordinator closed service orders. The intervention involved training each person in the Team to close their service orders. The number of closed service orders is a KPI (Key Performance Indicator) for Coordinators. The data graphed is for two service order types, Breakdown (M-BD) and Corrective (M-CM) Maintenance. Statistics from Breakdown Service orders are required by the regulator.

Prior to the intervention the closing of service orders was erratic. After the intervention (red line) there is a clear downward trend in the duration (as measured in days) that service orders remained opened. After the intervention the number of service orders for the team was steadily increasing (i.e. the density of the blue shading increases). It is not possible to close a service order until any accompanying purchase orders have been closed. This accounts for some spikes in the data.

Figure 5.18 Enterprise E – Number of days critical service orders remained open



Source: Enterprise E WELL Program

Part of the ICT training component has been to encourage ownership of administration processes, which has, in turn, reduced data error rates. Enterprise E has found that increased capability results from owning business processes and end-to-end task completion. For example, entering data collected using forms into ICT systems and then archiving these data. It has also been found that multi-skilling of personnel has meant that certain business processes can now be completed by several people within a team.

“Get Online is more than an ICT literacy program. It’s all about change and embedding ICT into people’s home and work lives.” Workplace Trainer

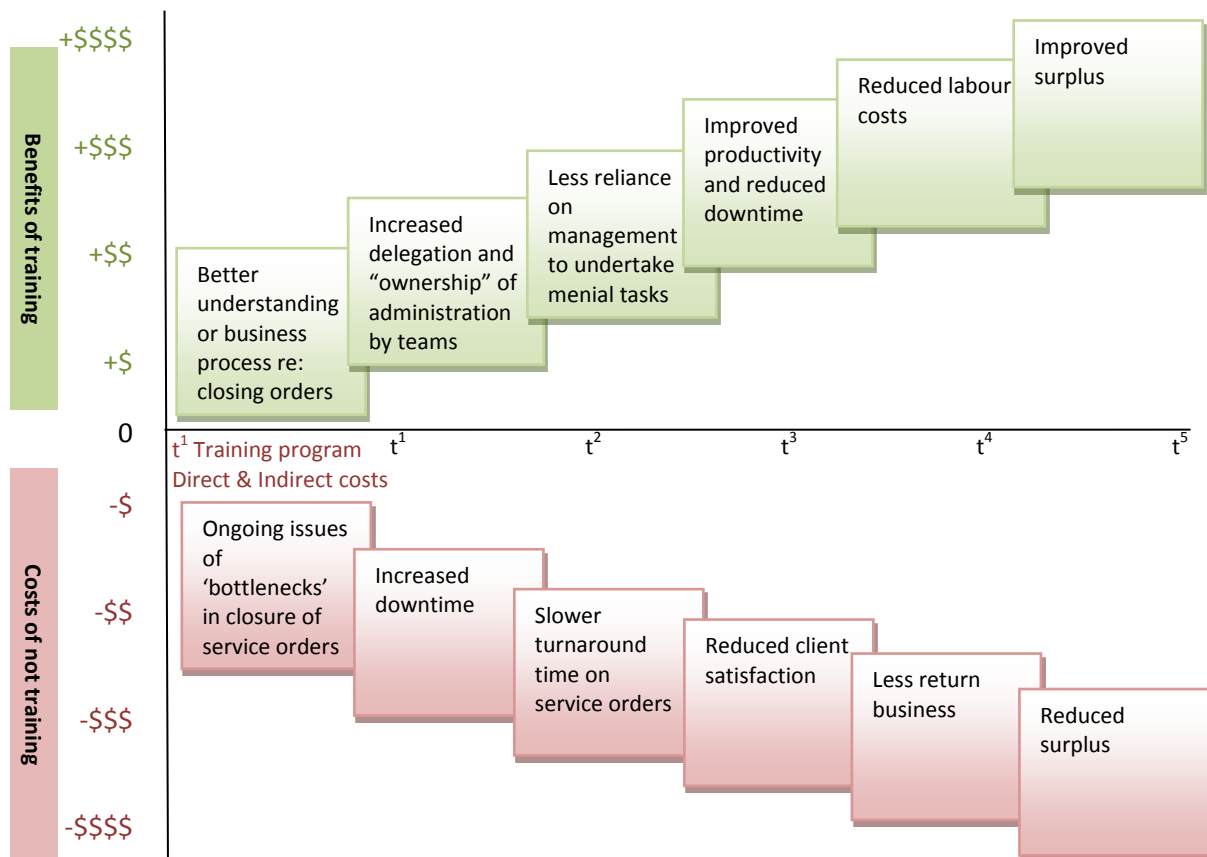
A number of benefits have also been identified for the participating workers. These include:

- Increased capacity in dealing with reading emails, reports, safety alerts and Standard Operating Procedures
- Understanding and completing forms
- More effective planning of work schedules
- Improved reporting of hazards, incidents and processes
- Improved coordination and management of work crews
- Less hesitation to learn and use technology
- Improved team performance, morale and productivity.

The completion of the Get online Project has enabled some participants to commence in trades such as Plumbing and Water Industry Operations certificates.

Figure 5.19 shows a scenario under which LLN training is or is not offered to a workforce in the utilities sector based on the experiences of Enterprise E. The ROI calculation was based on unit improvements in service delivery – that is, changes in the productive efficiency of the workforce. The diagram depicts a possible chain reaction which could result from a training intervention which seeks to improve team members capacity to close service orders without waiting for more senior, and consequently more expensive, workers to do this for them.

Figure 5.19 Enterprise E – Exemplar scenarios in the utilities sector



Although the information in this case study pertains to one work site only, according to Enterprise E, the training intervention was rolled out at other work locations with similar results.

"Literacy and numeracy programs, which concluded at the end of the 2013 – 14 financial year, have contributed significantly to the productivity and effectiveness of our field workers over the past three years." - Department Manager Capability and Performance

5.6. Enterprise F - “Supporting workplace health and safety training”

Location: South Australia, metropolitan Adelaide

Industry sector: Manufacturing

Description of employer and its workforce: Enterprise F is one of Australia's largest foundries of its kind, with significant domestic and export customers, including Asia, United States and Britain. The organisation manufactures for the automotive, mining and earth moving, construction, railway and white goods industries.

It has a male-dominated workforce of around 200 staff. The type of work requires extensive WHS protocols and exact compliance with procedures.

Description of training program:

The training was targeted at three separate audiences:

- Managers, supervisors and team leaders receive cross-cultural communication training to improve their oral and written communications skills with Culturally and Linguistically Diverse (CALD) employees;
- Trainers and assessors receive training to develop strategies in overcoming LLN barriers in their assessment and training practice; and
- CALD employees receive customised LLN training in workplace, health and safety.

The program commenced in March 2013 and was completed in November 2013. The total number of program hours was 348. The number of CALD employees in the program was 25 and the average number of WELL training hours per employee was 16.

The focus on the training delivered to CALD workers was Workplace Health and Safety (WHS). WHS training operates alongside WELL training – the two are inextricably linked. The General Manager Human Resources said that

“an organisational culture survey showed that workers were struggling with LLN”

This has obvious implications for the company's ability to comply with strict WHS protocols to minimise accidents, injuries and errors.

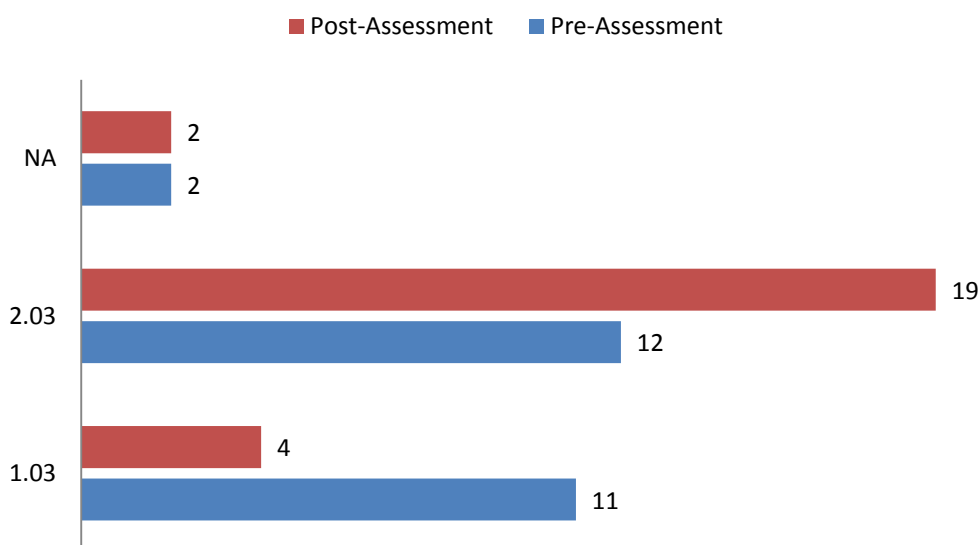
In addition to the program for the CALD employees there was a further program for 16 trainers and assessors and cross-communication training for 23 managers, supervisors and team leaders.

Results:

There were a number of qualitative benefits identified for the employee participants. One measure of these is the Australian Core Skills Framework (ACSF) results. The participants were assessed prior to and after the completion of training across three core skills of reading, writing and oral communication. There were six separate assessments across these core skills. The following three examples have been selected to illustrate improvement in relation to ACSF levels.

Figure 5.20 Enterprise F – Reading Core Skill

Indicator Description: Audience, purpose and meaning-making

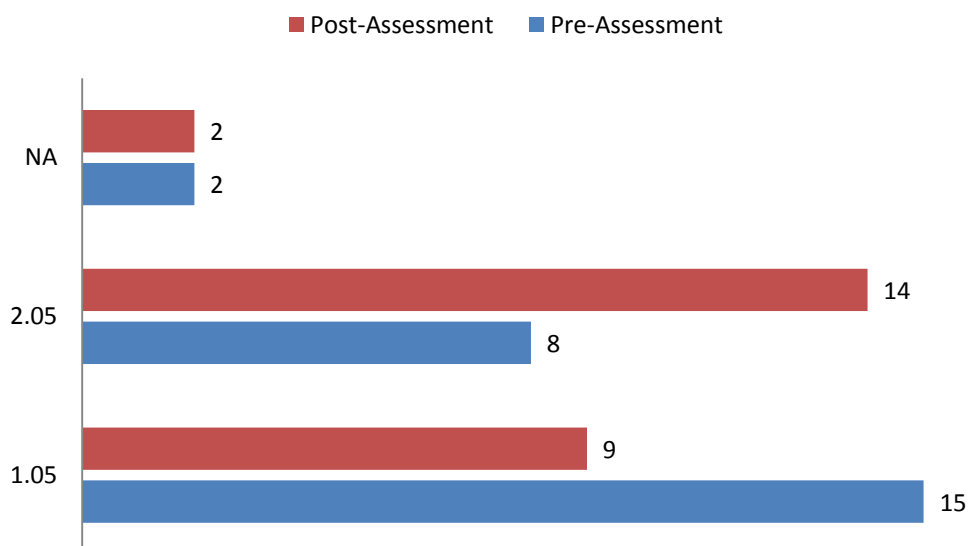


Source: Enterprise F WELL Program

All of the participants were assessed at the lowest levels of the ACSF and indeed, two of were assessed as pre-level one. As a result of the training 7 employees were able to progress from level one to level two. Those assessed at level two did not progress to the next level but rather consolidated their skills at this level.

Figure 5.21 Enterprise F – Writing Core Skill

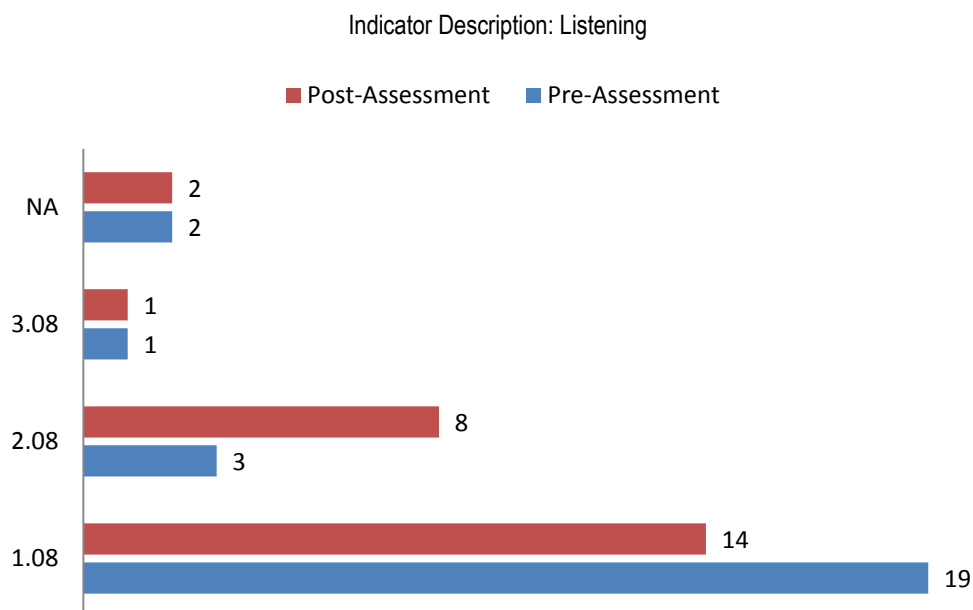
Indicator Description: Audience, purpose and meaning-making



Source: Enterprise F WELL Program

The situation in writing skills is very similar to reading skills. In this instance 6 employees were able to progress from level one to level two as a result of the training. Those assessed at level two did not progress to the next level but rather consolidated their skills at this level.

Figure 5.22 Enterprise F – Oral Communication Core Skill



Source: Enterprise F WELL Program

In this example the results are slightly more diverse. In this case 5 employees were able to move from level one to level two as a result of the training. Once again, those assessed at level two did not progress to the next level but rather consolidated their skills at this level. This was also the case for the single employee assessed at level three.

The participants were interviewed following the training and made a number of observations about what they had learnt. Most participants acquired new vocabulary about WHS issues and how to report hazards and unsafe work practices. They also reported more confidence in talking to supervisors and team leaders. In terms of communication skills, workers reported that they had improved pronunciation and listening skills and could confidently ask for clarification.

Worker comments:

“Course was good for reporting hazards more clearly.”

“I can talk to the supervisor about injury and risks.”

“I feel the course improved my English.”

“Helpful training and helpful teacher.”

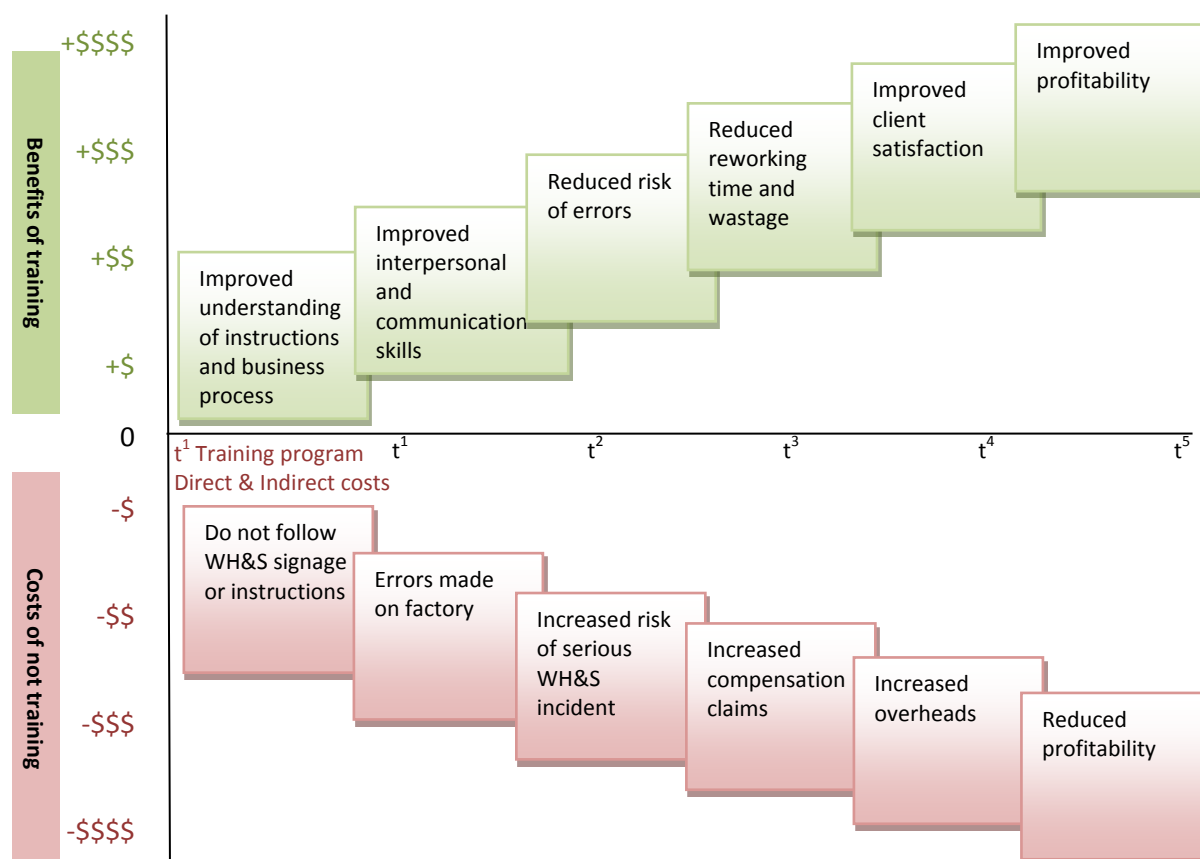
These observations were supported by the supervisors:

CALD have become proactive in WHS since the training.

Surprised to hear one CALD employee speaking.

Has had great feedback from CALD staff that did the training.

Figure 5.23 shows a scenario under which LLN training is or is not offered to a workforce in the manufacturing sector based on the experiences of Enterprise F.

Figure 5.23 Enterprise F – Exemplar scenarios in the manufacturing sector

The view of the Human Resources Manager is that WELL training is “not about production – it’s more about the workforce”. The enterprise looks more to measures like work cover claims for the impact of training programs such as WELL. If production measures were to be included, a measure of output per hour or tonnes of scrap wastage could provide some indication of impact but as an exporter and competitor in a globally competitive industry sector, it is very difficult to attribute how WELL might contribute to any change – and such inferences may not be particularly relevant to the enterprise itself.

The ROI calculation in Table 5.7 is based on hourly savings in time from workers and their supervisors. These hourly savings, summed over the number of trained workers and their supervisors, as well as downstream improvements in WH&S incidents, can assist with improving overall profitability of the enterprise.

Based on the program costing, it is possible to calculate estimates of the returns based on incremental improvements in worker productivity and reduced supervision time. The project cost of \$47,216 was subsidised by the Government at 75 percent of cost – leaving an employer contribution of \$11,804. Workers are on an average wage of \$20 per hour and there are 25 workers being trained. There are two supervisors on an average wage of \$40 per hour. There is an estimate of the cost savings of 1.5 hours of improvement per week for the workers and a saving of 0.5 hours for the supervisors.

Table 5.9 shows that if the training brought about a 1.5 hour reduction in worker time correcting errors and a corresponding 0.5 reduction in supervision time this would result in an ROI of 163 percent.

Only marginal increases in the hours saved would result in far greater returns on the relatively minor investment. The various assumptions made to produce the ROI (e.g. hours saved) may have considerable bearing on the resulting output and this must be taken into account. However, if qualitative data, via structured interviews and surveys, can confirm these figures, they become more compelling as a means of discerning benefit to the enterprise.

Table 5.9 Enterprise F – Return on Investment estimate

Cost of Training Program			
Total Project costs			\$47,216
<i>Commonwealth funding under the WELL program</i>			\$35,412
<i>Employer contribution</i>			\$11,804
Savings in staff time	Hours saved per week correcting errors	Cost savings per week	ROI on employer contribution
(A) Weekly wages of workers @ \$20 per hour	1.5	\$18,000	
(B) Weekly wages of supervisors @ \$40 per hour	0.5	\$1,200	
Total labour cost savings (Sum of A and B)		19,200	
Program Benefits/Program Costs x 100 = ROI	\$19,200/\$11,804 x 100		163%

Source: Enterprise F WELL Program

As a consequence of the WELL training the company evaluation resulted in a number of recommendations. Further English language training for CALD employees in workplace processes and procedures, such as quality and Standard Operating Procedures, has been recommended. Additionally, mentor training has been recommended for trainers and assessors to implement LLN skills into training and assessment.

5.7. Enterprise G - “Reducing turnover and improving employee engagement”

Location: Victoria, metropolitan Melbourne

Industry sector: Aged care

Description of employer and its workforce:

Enterprise G is a large aged care service provider with a number of sites – some long established and one only a year old. Each has its own characteristics in terms of diverse client groups, workforce profile and histories. The enterprise is rolling out a new IT-based system ‘i-care’, an off-the-shelf product. WELL is being used to support this program, while developing and enriching workforce practices and improving worker engagement. WELL has offered opportunity to give some workers more intensive IT training – which is contextualised to the i-care software.

Description of program:

The role of carers continues to change and evolve. More than ever, the role requires an ability to read charts and document observations accurately for client (resident) safety and well-being, secure funding via the Aged Care Funding Instrument (ACFI) and to pass aged care standards. When employing new staff, Human Resources may provide literacy pre-assessments as ‘screeners’ to help reduce upfront costs.

Documentation is now part of the day-to-day job and regulation puts the skills of carers under the microscope. The ACFI is based on care needs so the enterprise needs accurate and detailed information presented in correct formats. Detailed, meaningful and accurate documentation of a client’s health issues is critical because the enterprise must have evidence to support claims for funding. The WELL program was designed to address LLN issues associated with understanding the ACFI language protocols and methodology.

This particular enterprise understands the expectations placed upon them in terms of meeting compliance requirements. In turn, this means that their workers must be able to document observations, input data and to understand policies and procedures, client reports and terminology. The WELL program is focused on documentation, infection control, e.g. progress notes, charts assessment of personal hygiene and behaviour and medication.

The enterprise sees ongoing education and training – a commitment to lifelong learning and learning to learn – as major parts of employment and careers in the aged care sector. Participants had the option to enrol in a Certificate as part of the training which received some reasonable uptake. WELL, it considers, is just one option in a bundle of training supports. The mode of delivery is a mix of either one-on-one or in a group sessions. According to the site manager,

‘WELL has been really useful for the IT illiterate’.

General Manager, Residential Services

WELL is being operated on multiple sites and site managers use it for different purposes depending on need and workforce profile. At one particular site with 50 staff, 15 of who are WELL participants, there is a focus on ICT. According to the site manager, ‘if they couldn’t learn to use the IT systems they would be lost to the industry’.

The most recent training cycle has included cultural diversity and conflict resolution training. Most participants at the site have English as a second language or third language and are older than the industry average. The site manager found that younger workers picked it up quickly but 1:1 WELL training was used to increase older workers’ comfort and reduce isolation. The enterprise sees it as critical to improve ICT skills so that workers can perform their role.

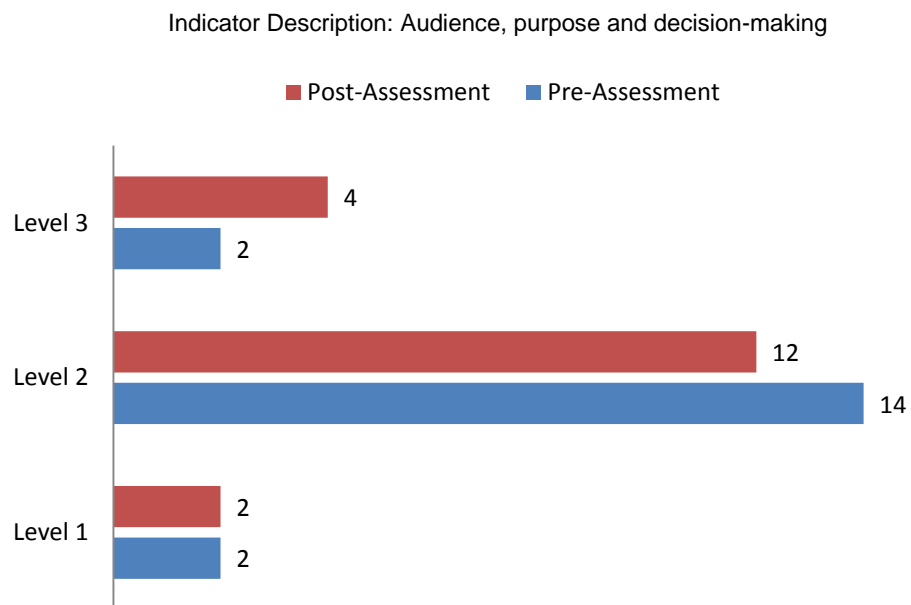
Results:

A number of qualitative benefits were identified for the participant employees. These include: increased confidence and self-worth, being able to be more clearly understood, being able to more effectively negotiate and fitting more effectively into the organisation culture. Carers who are from various cultures find it difficult to make eye contact because they are not confident to talk out loud. The WELL program encourages them to practice their new found skills. This improves the customer experience in the home and a reduction in complaints.

Investing in Workforce Literacy Pays

One of the measures of the benefits for individuals concerns achievements in ACSF results. The following results are drawn from a sample of participants and indicate performance in three of the core skills.

Figure 5.24 Enterprise G – Reading Core Skill

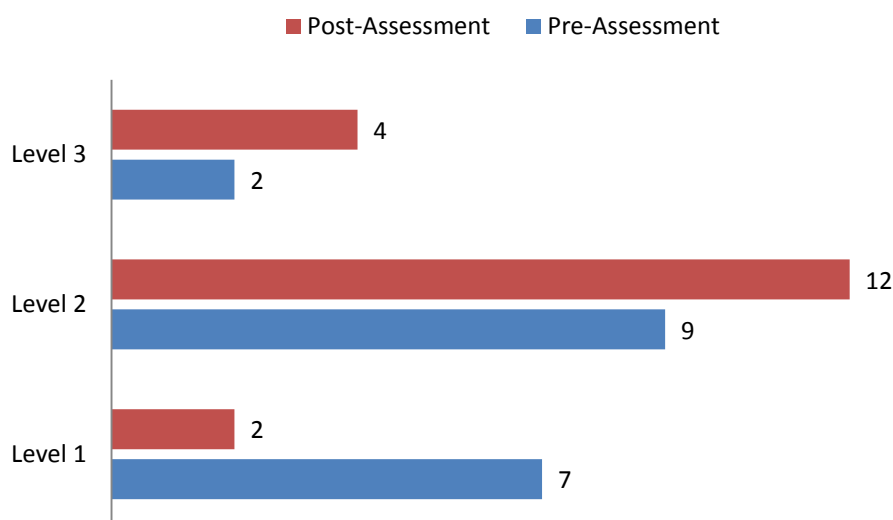


Source: Enterprise G WELL Program

These results indicate some minor movement after training in levels from two to three in the reading core skill.

Figure 5.25 Enterprise G – Writing Core Skill

Indicator Description: Audience, purpose and meaning-making

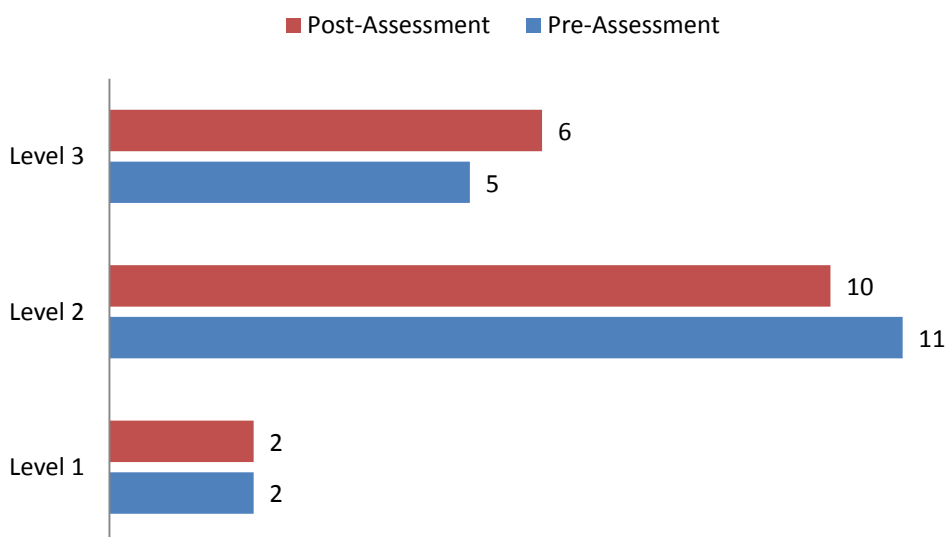


Source: Enterprise F WELL Program

In relation to the writing core skill there was some improvement from level one to level two and from level two to level three after the completion of training. There were seven increases in levels overall.

Figure 5.26 Enterprise G – Oral Communication Core Skill

Indicator Description: Speaking



Source: Enterprise G WELL Program

In relation to the oral communication core skill there was one only one level change. This was an increase from level two to level three as a result of the training. The facilities manager has reported greater sense of cohesion in the group. A participant provided feedback that they felt an increase in their worth and appreciated being invested in. The enterprise feels that providing a WELL program sent a message and has flow on effects. There are assumed downstream benefits in terms of: reduced sick leave; savings on recruitment costs (\$28,524 for recruitment, training and operational costs); reduced

turnover; and improved employee commitment. The employee turnover rate was 16.03% for 2011-2012 and 15.48% for 2012-2013 – compared to the Australian average of around 25%²⁰.

A major identified benefit of the program is that supervisors now spend less time entering the case notes on behalf of the personal care assistants. In some instances the carers are sufficiently comfortable entering data on the IT system themselves saving entry and checking time for the supervisors.

The general manager also identified the improvement in funding since the program took place. All residents in aged care are funded through ACFI which is determined by the dependency of the individual eg. If a resident becomes less mobile they attract more funding. It is very important for all the care to be captured in documentation by the staff. During this period the ACFI funding has increased by \$30 a day for each resident. This represents significant funding to the organisation. Over a year the funding will have increased by over \$3 million.

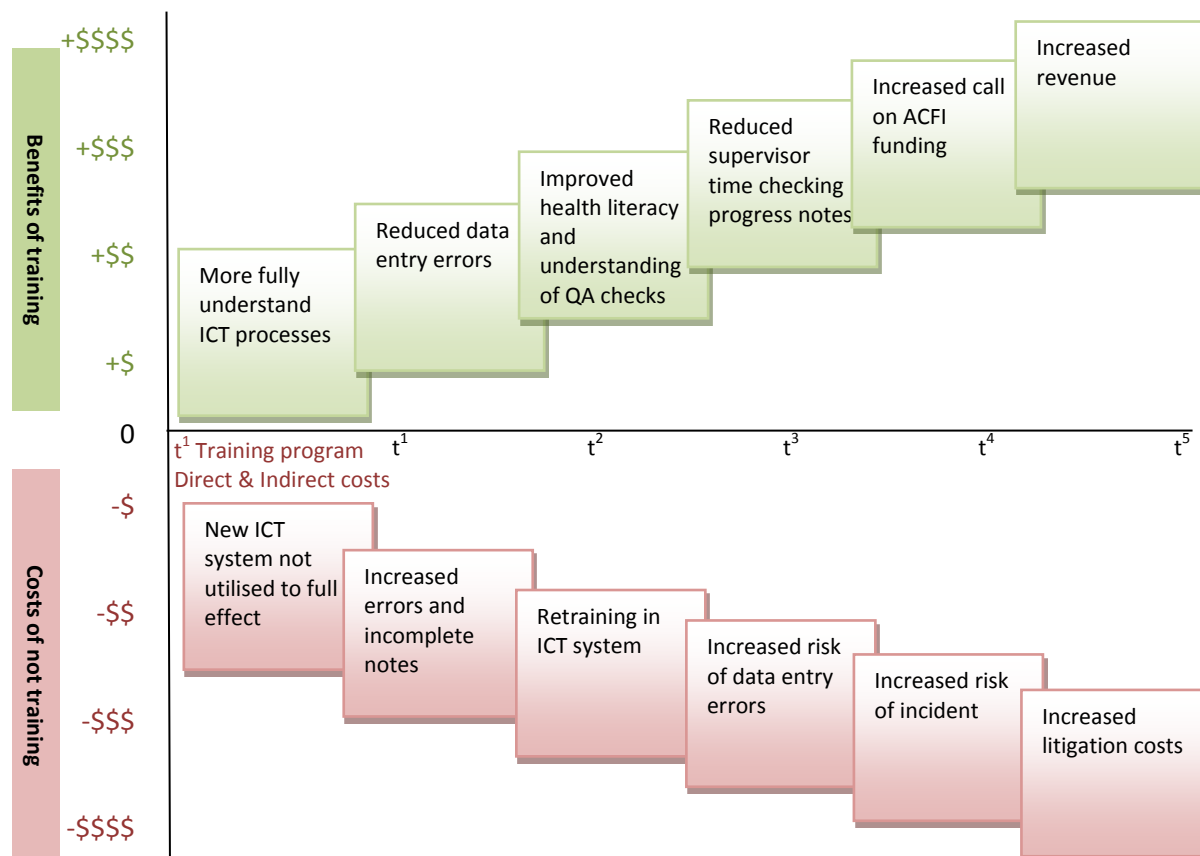
There were key results for the organisation as well as a consequence of participation in the WELL program. There was a clearly observable improvement in communication between the management and the line staff. More teamwork and greater cohesion was in evidence. Carers were able to display increased initiative and to problem solve on the floor with greater confidence.

There were benefits also for the organisation in the important accreditation process. The WELL trainer was able to participate in this process and explain what the standards mean in terms of the carers. This increased knowledge of the standards enabled carers to take more responsibility which was a further benefit for the organisation. All carers are exposed to being questioned by assessors during the accreditation period and it is important that they comprehend English language.

Figure 5.26 shows a scenario under which LLN training is or is not offered to a workforce in the aged and residential sector based on the experiences of Enterprise G. Like Enterprise B, there is recognition that improved documentation has a direct impact on their ability to call on ACFI funding. There was an emphasis in Enterprise G on staff retention, given the known costs of recruitment and ongoing training suggesting that Enterprise G is well-regarded by its employees. A possible reason is the commitment to workplace literacy training which has been operating for a number of years and in 2013-14 was rolled-out on a new site staffed with new recruits.

²⁰ <http://www.health.gov.au/internet/publications/publishing.nsf/Content/ageing-aged-care-reform-measures-toc~ageing-aged-care-reform-measures-chapter6.htm>

Figure 5.27 Enterprise G – Exemplar scenarios in the aged care sector



While Enterprise G was able to identify a number of these benefits of training to the organisation, at this stage they are unable to translate this into financial calculations.

The enterprise reinforces the point that WELL is ‘not just a work benefit and skills can be applied elsewhere’. They make the point that ‘WELL is more than LLN’. To demonstrate the impact of the program, the enterprise was able to list factors like: group communication, conflict resolution, cultural diversity, organisation wide continuous improvement, creation of awareness to improve teamwork and people becoming more pro-active.

They also see change as being long term in that the ‘return may take at least 12 months’ to see any change but as a longer-term program they can see cumulative effect over the last three years.

CHAPTER 6 – SUMMARY OF RESULTS AND IMPLICATIONS

This chapter summarises the findings from the project case studies (Chapter 5), the review of research literature (Annex 4) and the review of earlier evaluations in Australia and overseas (Annex 5). Each finding is considered in terms of its implications for stakeholders of workplace-based language, literacy and numeracy training.

6.1. Summary of results

In summary, this pilot study has identified the following results:

A. Enterprises perceive the returns to be real, uniformly positive and worthy of their investment

The project findings, summarised in Table ES2, affirm those from earlier evaluations where employers' rated highly the outcomes from workplace literacy training. ROI calculations were carried out in 4 of the 7 programs – each returning uniformly positive results. All seven employers can also point to numerous examples of individual workers or groups of workers who they have observed improvements in across a range of tangible and intangible dimensions (e.g. improved productivity, reduced errors, better understanding of instructions etc) – each of which is assumed to have a direct or indirect downstream benefit to business outcomes. Where possible, these benefits are quantified in the case studies.

The managers and supervisors who were interviewed spoke about a 'leap of faith' which they took, and must repeatedly take, when making the business case for internal resources to be directed towards LLN training. After a short period of training, most employers' could visibly observe changes in the first year which they attributed to the training, which led to renewal of the program in the following year.

There was a general recognition among employers that ROI, or some form of cost/benefit analyses, would help to make a more compelling business case in the future.

B. ROI and cost-benefit models are a starting point but not solely sufficient

ROI is, by design, a relatively simple indicator of benefits relative to costs. It has primarily been used in the business and finance sectors to differentiate and compare between alternative courses of action. When applied to the specific context of workplace LLN training, an enterprise could deploy a ROI evaluation to ask - *what will be the return on the LLN training program (Option A) compared to Option B (upgrade equipment) or C (a different workplace training program)? All remaining equal, where will the biggest gains be made over the short, medium and longer term?*

At the enterprise level, issues of data availability, quality and usefulness have considerable implications for conducting cost/benefit analyses – including whether it should be conducted at all. Some degree of pragmatism is required. For example, when evaluating workplace training one must undertake the task of defining 'impact' or 'change' or 'benefit' flowing to a 'beneficiary' (e.g. an employer, worker, government) resulting from a particular training intervention – in this case it is a workplace English language and literacy program which creates a further layer of complexity to the ROI model. More specifically, one must ascribe a financial value to the 'benefit' and express it as a percentage of the total cost net of all other factors. As shown in Annexes 4 and 5, cost-benefit analyses are increasingly being applied to this field with uneven success, and often with opaque transparency.

At a threshold level, it may not necessarily be feasible or cost-effective to conduct experimental studies, particularly in small-medium enterprises. Instead, it may be more practicable to conceive of these evaluation models as a means of:

Estimating cost-offsets in targeted areas of the enterprise which could reasonably be directly or closely attributed to the LLN training thus neutralising the cost of training and generating a positive return for the enterprise (e.g. improved documentation); and

Making the most persuasive and compelling business case possible for more (or less) investment in a particular area of the business.

C. ROI evaluation models must be customised, fit for purpose and add-value

Workplace LLN training, and the resulting benefits, do not operate in a vacuum. Operationally, this type of training is more often contextualised to support wider organisational objectives or programs and do not run as a discrete training program. But whatever the approach, ROI evaluation models must address a particular need or an identified gap in the knowledge base. Likewise, data collection must be administratively simple and be customised to the systems and processes occurring within the enterprise.

To rationalise any kind of staffing and resources commitment at enterprise level, evaluation methodologies must be transparent, coherent and add value. Transparency allows for some degree of comparability in that one understands the judgements made by the evaluators in selecting certain data elements (e.g. hourly savings or reductions in incidents), adjusting for various factors; and the overall approach taken to determining costs and benefits. In the aggregate, these micro judgements can significantly affect the ROI results.

The recent Canadian evaluation, UPSKILL (Gyarmati *et al.* 2014), is an excellent example of how a coherent evaluation model can be customised to a specific industry sector. It uses an experimental design with control groups and 'apples with apples' comparisons across job roles. The focus is on identifying training impact in areas of greatest need to give focus and direction to the evaluation. It also drew on routinely collected administrative data as further evidence of training impact.

6.2. Concluding remarks

The findings from these seven case studies, the project literature review (Annex 4) and the summary of earlier workplace evaluations (Annex 5) make clear that this field of evaluation is both methodologically fraught and logistically challenging. The reasons for this have been reaffirmed many times and most recently in the large-scale evaluations of workplace literacy programs in New Zealand (Upskilling Program) and Canada (Measures for Success).

ROI calculations need to be kept in perspective. Enterprises are complex entities operating in dynamic environments. Decision making which draws on ROI calculations must recognise them as *estimates*. As such, they are critically dependent on the quality of the data available on benefits and costs, and on other information about an enterprise's operations and environment.

Despite the inherent challenges, the demands placed upon workplace training programs are considerable and growing. Many countries have recognised the need for dedicated workplace literacy programs and made successive attempts, with mixed results, to more accurately capture evidence of impact.

The landmark study by Ananadiou, Jenkins and Wolf, 2003, published more than 11 years ago, offered a succinct roadmap:

"We belabour these points because we conclude, from this review, that there is a real and urgent need for more research. In the context of basic skills workplace provision, both large-scale quantitative analyses, assessing the benefits and costs of literacy/numeracy training on representative datasets, and case studies offering in-depth investigation of basic skills training at particular workplaces would be valuable."

In principle, better evidence is needed to rationalise investment in workplace training. Most would agree that a robust evaluation model which captures reliable evidence and meets the needs of its users should be supported. Methodologically, however, principles often succumb to the technical and logistical obstacles inherent in the ROI evaluation method. Despite its challenges, it is clear that recent evaluations are: (a) forming a stronger evidence base, (b) making a more compelling case that there are quantifiable financial benefits to enterprises from LLN training; and (c) setting the groundwork for future evaluations.

ANNEX 1 – DATA COLLECTION INSTRUCTIONS

INSTRUCTIONS FOR COMPLETING THE ROI DATA COLLECTION TEMPLATE

These instructions will assist employers to collate information. The focus is on drawing together information that is already available in the workplace and minimising the burden of any new data collection.

The generic ROI data collection template, attached in Excel format, will be specifically tailored for participating workplaces. It is divided into three sections:

- A. Program description and budget** (collected once);
- B. Quantitative costs and benefits of training** (collected three times); and
- C. Qualitative benefits of training** (collected once).

There are three data collection points:

- 1. At, or close to, commencement of the WELL training (Sections A and B);
- 2. Directly after training commences (Sections B and C)
- 3. Six months after training completes (Section B).

The key tasks for each workplace are as follows:

- 1. **Identify a Workplace Coordinator** for the ROI project. This person will act as the central point of contact between the employer and the researchers at ACER.
- 2. After giving consent to participate in the research, the Workplace Coordinator will **review the data collection template with ACER via a phone or face-to-face meeting**.
- 3. The Workplace Coordinator will **identify the areas of their organisation to complete each section (e.g. Finance, HR, trainee supervisors)**.
- 4. **Identify the target group** for inclusion in the data collection exercise. Ideally this is a group of employees who have yet to start or have recently started their WELL training. The number of employees in scope is included in Q7 of Section A.
- 5. **Complete Section A and Section B (1st collection point)** prior to, or close to, the commencement of training. Send Excel workbook to ACER.
- 6. **Complete Section B (2nd collection point) and Section C** directly after training completes (and update Section A if need be). Send Excel workbook to ACER.
- 7. **Complete Section B (3rd collection point)** 6 months after training completes (and update Sections A and C if need be). Send Excel workbook to ACER.

Section A – Program description and budget

The purpose of Section A is to fully account for the cost of delivering the WELL program in order to calculate the return on that investment. To complete Section A:

- a. The Workplace Coordinator will require a copy of the *WELL Training Funding Application* document.
- b. The enterprise will need to identify any notable additional costs associated with delivering the WELL program i.e. in-kind contributions. These additions to the WELL budget are included in questions 13-18 of Section A.

Section B - Quantitative costs and benefits of training

The purpose of Section B is to estimate changes in business operations over the course of the WELL training program and six months after the training completes. Section B collects data in five different areas and at three points:

a. Personnel costs

Collected from: Finance/HR areas

- i. This section requires the collection of average hourly wages and on-costs of employing the trainee and their supervisor. These hourly amounts are presented in terms of a minimum and maximum average across all trainees in the WELL program and supervisors who have contact WELL participants.
- ii. 'Minimum/Maximum wage bands' refers to the upper and lower pay ranges for workers at the a) WELL trainee level and b) supervisor level. These data are estimated on an average hourly basis.
- iii. On-costs are the additional costs (in addition to salary/wages) incurred in employing someone to fill a position or undertake a role e.g. provisions for Superannuation, Long Service Leave, Workers' Compensation and Payroll Tax.

b. Productivity gains

Estimates collected from: Supervisors of WELL program participants

- i. *Hours supervisor(s) works directly with trainees* – This measure estimates changes in the amount of time that *supervisors* work directly with program participants, on average, each week. This could involve:
 - Changes in supervisor time checking and correcting the work of program participants (e.g. notes, documentation, measurements, calculations etc).
 - Changes in supervisor time shadowing employees when undertaking general/specialist/technical tasks
 - Changes in supervisor time explaining job requirements
 - Changes in supervisor time required to ensure standards are being met
- ii. *Hours trainees take to complete key tasks* – This measure estimates changes in the amount of time that *program participants* spend completing a core set of 2-3 key tasks, on average, over the course of a week. Examples of tasks could include:
 - Completion of timesheets
 - Completion of documentation
 - Entry of notes onto an IT system
 - Technical / specialist tasks (e.g. setting production machinery)
- iii. *Other productivity gains* – Are there other areas which your organisation can demonstrate a measurable productivity gain over time? If so, please include it here.

NOTE: For the above sections, particularly (ii), the researchers fully acknowledge the breadth of job roles and industry areas involved in this project. These types of productivity measures may also be affected a range of externalities (e.g. fluctuations in demand or a machine breakdown). Such limitations will be fully acknowledged in our assumptions.

c. Operational costs

Estimates collected from: Finance/Operations Managers

- i. *Cost of OH&S incidents* – This measure estimates the *budgeted/expected annual cost* of OH&S incidents for the current financial year. Employers may benefit from lower insurance premiums, penalties, fewer workers', compensation claims, and reduced productivity losses from accidents or injuries.

Investing in Workforce Literacy Pays

- ii. *Estimated cost of waste/shutdowns* - This measure estimates the *budgeted/annual cost* of waste (e.g. materials, consumables, equipment) and shutdowns (e.g. lost productivity, resetting machinery, and lost revenue).
- iii. *Other operational costs* – Are there other areas which your organisation can demonstrate a measurable operational cost over time? If so, please include it here.

d. Human resources costs

Collected from: Human Resources area

- i. *Turnover rates (whole organisation)* - Divide the number of employee departures in one quarter by the average number of active employees during the same period.
- ii. *Turnover rates (WELL trainee group)* - Divide the number of employee departures among the trainee group in one quarter by the average number of remaining members of the training group during the same period.
- iii. *Other operational costs* – Are there other areas which your organisation can demonstrate a measurable human resource cost over time? If so, include it here.

e. Other financial benefits

Collected from: Across the organisation

- ii. *Other financial benefits* – Outside of the areas already listed, are there any other financial benefits to investment in WELL training that can be measured over time? If so, include them here.
- iii. Additional examples may include the value attached to:
 - production costs per unit
 - output (per worked hour, per shift, per machine, per annum etc)
 - equipment maintenance (costs or repair time), or replacement costs
 - equipment/facility/asset utilisation (e.g. downtime due to machine stoppages, shift change over time)
 - response time (e.g. to service calls or orders)
 - reduced absenteeism
 - changes in number of overtime hours
 - changes in outsourcing costs owing to in-house training
 - reduced time spent handling complaints / escalations to supervisors
 - improved quality of products or services
 - increased retention of clients / repeat orders
 - reduced time spent on reporting and compliance requirements
 - reduced time spent on industrial disputation, lawsuits, legal fees, court action

ADDITIONAL DATA: We would welcome any additional information the employer can provide which demonstrates a measurable change over time. For example, some employers have pointed to:

- examples of control groups which could form a useful basis for comparison
- staff satisfaction and well-being surveys
- customer satisfaction surveys
- site comparisons of unit costs of production
- staff turnover relative to industry norms

Please attach any additional information to the data collection template by adding worksheets to the Excel workbook.

Section C - Qualitative benefits of training

Collected from: Finance/HR/Operations Managers/Supervisors

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Research into the value of workplace training has identified a range of qualitative or intangible benefits to employer from investing in workplace training programs. Such benefits can include:

- Satisfaction levels of participants from the training program;
- New knowledge / skills that participants learned from the training program;
- The changes in behaviours of participants because of training program; and
- The effects of behavioural changes of participants to the employer.

This section asks staff who are responsible for managing finances, budgeting and resources to consider how each of the identified factors impacts on business performance, financial results and productivity. These are intended to be general observations, although specific examples are welcomed.

Employers are welcome to identify other areas of change they see as having a notable impact on their business.

ANNEX 2 – DATA COLLECTION INSTRUMENTS

RETURN ON INVESTMENT FROM WORKPLACE TRAINING



Section A: PROGRAM DESCRIPTION AND BUDGET

Workplace Coordinator (ACER contact)	
Enterprise name	
Industry sector	
Total number of employees across all sites	
Brief description of WELL program	

1	Program start date	
2	Program end date	
3	Hours of direct teaching	
4	Hours of indirect teaching	
5	Number of trainees who started program	
6	Number of trainees who completed program	
7	Average number of hours per participant	
8	Number of employees in target group (for use in ROI calculations)	
9	Hours per working week	
10	Working weeks per year	

WELL budget and supplementation



Please attach a copy of your WELL Program Budget from the *Training Funding Application* document

		\$
11	Total Project costs	
12	WELL contribution	
13	Employer contribution	
14	Cost of additional staff supporting WELL training (e.g. Operations manager)	
15	Expenditure on new facilities/refurbishment	
16	Hiring of facilities	
17	Expenditure on training materials (e.g. computers, printing)	
18	Expenditure on program development/customisation	
19	Other, please identify:	

Investing in Workforce Literacy Pays

RETURN ON INVESTMENT FROM WORKPLACE TRAINING				ACER		AUSTRALIAN INDUSTRY GROUP	
SECTION B: QUANTITATIVE COSTS AND BENEFITS OF TRAINING							
		Example	1 Before or near start of training	2 Directly post-training	3 6 months post-training	Notes to financial data	
Data collection period		Apr-May 2013				What do these measures show? What don't they show? What factors need to be considered when looking at changes over time?	
Unit							
A PERSONNEL COSTS							
WELL trainee wages							
1	Minimum wage band + plus on costs	Hourly average	\$15.50				
2	Maximum wage band + plus on costs	Hourly average	\$25.50				
Supervisor wages							
3	Minimum wage band + plus on costs	Hourly average	\$25.50				
4	Maximum wage band + plus on costs	Hourly average	\$35.50				
B PRODUCTIVITY GAINS							
5	Hours supervisors work directly with trainees	Average estimate per week	10.00 hrs				
6	Hours supervisors spend correcting errors	Average estimate per week	5.00 hrs				
7	Hours trainees take to complete key tasks	Average estimate per week	5.00 hrs				
8	Other productivity gains relevant to your organisation / industry						
C OPERATIONAL COSTS							
9	Expected annual cost of OH&S incidents	Forecast for calendar year	\$5,000.00				
10	Expected annual cost of waste/scrap	Forecast for calendar year	\$2,000.00				
11	Expected annual cost of shutdowns/breakdowns	Forecast for calendar year	\$2,000.00				
12	Other operational costs relevant to your organisation / industry						
D HUMAN RESOURCES COSTS							
13	Recruitment/replacement costs (WELL trainee level)	Forecast for calendar year	\$3,000.00				
14	Turnover rates - trainee group	Year-to-date	25.0%				
15	Turnover rates - whole organisation	Year-to-date	22.0%				
16	Other operational costs relevant to your organisation / industry						
E OTHER FINANCIAL BENEFITS							
17							
18							
19							
20							
21							
22							
23							

RETURN ON INVESTMENT FROM WORKPLACE TRAINING		ACER		AUSTRALIAN INDUSTRY GROUP	
SECTION C: QUALITATIVE BENEFITS OF TRAINING					
Area of change	Comments on savings OR benefits OR financial returns resulting from this area of change				
1 Worker retention rates and morale					
2 Awareness of job requirements and work procedures					
3 Enhanced job performance and reduced errors					
4 Awareness of safety, hygiene and environmental requirements (e.g. OHS)					
5 Confidence to undertake more advanced tasks					
6 Capability to undertake independent work / ownership of tasks					
7 Team work and communication skills					
8 Social cohesion and organisational culture					
9 Prospects for career development, promotion and advancement					
10 Decision-making skills					
11 ICT skills					
12 Other:					

ANNEX 3 – EMPLOYER CONSENT FORM



Return on Investment in WELL Programs for Employers

Your organisation is invited to participate in the project *Return on Investment in WELL Programs for Employers*.

The project is developing Return on Investment instruments to measure the benefits and costs to employers of investing in language, literacy and numeracy training for their workers. The instruments are being trialled during 2013 in selected Workplace English Language and Literacy (WELL) program workplaces. The instruments are intended to be a resource employers can use to help plan their training investments.

The project is being managed by the Australian Industry Group (Ai Group) and funded by the Australian Government Department of Industry, Innovation, Science, Research and Tertiary Education (DIISRTE). Ai Group has commissioned the Australian Council for Educational Research (ACER) to conduct the research.

Participation in the project is voluntary. Organisations are free to withdraw from participation at any time. However, in order to maximise the value of the project all invited organisations are encouraged to take part.

Background information about the project is enclosed. Please read it and sign the consent form below.

Please either fax the form to ACER on 03 9277 5500 or email to justin.brown@acer.edu.au by 11 February 2013.

CONSENT FORM

I have read the Information Sheet regarding the project Return on Investment in WELL Programs for Employers.

I understand the nature and purpose of the data being collected and agree/do not agree (please circle one) for my organisation to participate in the project.

Organisation name:
Address:
My name
Position in organisation.....

Contact phone: (....)..... Fax: (....).....

Email address:

Signature..... Date ____ / ____ / 2013

ANNEX 4 - LITERATURE REVIEW

A4.1. Introduction

Enterprises are dynamic and complex entities operating in turbulent internal and external environments. Maglen *et al.* (2001) summarise the challenge of training evaluation this way:

Evaluating the returns to training at an enterprise level requires analysing the multi-layered and interconnecting set of relationships and decision-making processes involved in being in business. Training is not conducted in a vacuum, and the need for it, its design and conduct and its outcomes depend upon the nature of the enterprise's skills requirements, work organisation, job design, employment practices and its product, production and investment strategies etc.

Although there are studies of the returns to employers of investing in workforce training generally, studies which focus on costs and benefits of literacy and numeracy training in the workplace are far fewer (Hartley and Horne, 2011). The literature on workplace literacy and essential skills training often notes a shortage of information on evaluation (Salomon, 2009). Empirical studies on the impact of workplace literacy training programs are scarce, fragmentary and replete with assumptions, observations and limitations (Benseman, 2010; Ananiadou *et al.*, 2003). Many of these programs are subjected to “soft” evaluations which effectively make judgements based on superficial information limited to surveys of learner satisfaction, manager observation and anecdotal reports of effectiveness (Mikulecky and Lloyd, 1993).

Recent literature reflects a persistent linking of skills training to employer gains and productivity. However, authors are often cautious in extending the link specifically to literacy and essential skills training (Salomon 2009). A recent report observed that, while there is growing evidence that workplace training in general improves productivity (in terms of reduced labour turnover and stronger worker commitment and loyalty to their employers), “there is remarkably little evidence of the benefits for employers of improving basic skills of employees and claims of outcomes appear, ultimately, to be “based on faith as much as evidence” (Merrifield 2007).

Research and evaluation focused on the impact of workplace language, literacy and numeracy training programs is “newly emerging” and particularly underdeveloped (Benseman, 2014; Gray, 2006; Barker, 2001). The key pieces of work: Gray, 2006; Salomon, 2009, Benseman and Sutton, 2007; and Benseman, 2007-2014) assist with highlighting the challenges and obstacles, highlight best practices and discuss issues debated in the literature. There has been little evidence found on the impact of LLN on productivity; and the cost effectiveness of LLN programs (Vorhaus *et al.* 2011).

Benseman (2014) summarises these issues as follows:

To date, there is a large body of writing on the value of workplace LLN programs within companies (Ananiadou, Emslie-Henry, Evans, & Wolf, 2004; Ananiadou, Jenkins, & Wolf, 2003; Gray, 2006; Salomon, 2009), but little of this literature is based on original research studies. Instead, most focus on surveys of stakeholders' opinions or simple post-course evaluations rather than more rigorous studies involving pre-/post- course analyses. Much of the writing is focused on whether the courses are rated positively by stakeholders instead of demonstrating the impact on LLN skills, let alone any impact on workforce and company performance. Consequently, there have been consistent calls for improving the research rigor of studies in this area, particularly by including quantitative data (Mikulecky & Lloyd, 1993; Pye & Hattam, 2008; Shi & Tsang, 2008).

Benseman and Sutton (2007) describe the state of research workplace literacy programs:

There is very limited research on the economic value of LLN programs which can include immediate or early impacts on measures such as waste, injury rates and absenteeism and longer term effects such as monetary assessment of the productivity gains for employers and earnings gains for learners. ROI research is complex and costly and needs to be undertaken by experts and include sufficient time for empirical data collecting. Few studies include costings in

their reporting, which is probably due to commercial sensitivity, although some of this information may be available in-house within the agencies concerned.

Although this literature review covers a wide body of research, there are three landmark literature reviews in the area of workplace literacy evaluation which are worth mentioning by name because of their significant contribution to the field:

1. Ananiadou, K., A. Jenkins, *et al.* (2003). *The benefits to employers of raising workforce basic skills levels: a review of the literature*. London, NRDC
2. Gray, A. (2006). *Upskilling through foundation skills - A literature review*. Wellington: Department of Labour
3. Salomon, M. (2009). *Workplace literacy and essential skills: what works and why?* Montreal, The Centre for Literacy/Le Centre d'alphabetisation.

This literature review seeks to map the nomenclature, frameworks and findings from earlier studies and programs evaluations to provide some greater coherency of the field. The following chapter focuses more directly on particular large-scale evaluations in a selection of countries.

The structure of the literature review is as follows:

- 1. Employer perceptions of workplace training evaluation**
 - Reasons why employers evaluate workplace training programs
 - Reasons why employers do not evaluate workplace training programs
- 2. Methods used to evaluate workplace training programs**
 - Kirkpatrick/Phillips Levels of Evaluation
 - Return on Training Investment
 - Using Levels 4 and 5 to measure impact of training on productivity
 - Return on Expectations
- 3. Approaches to data collection and analysis**
 - Research methods (quantitative, qualitative or mixed methods)
 - Identifying training inputs and costs
 - Identifying benefits to employers; workplace practices; employees; and the wider community and government
 - Isolating the net benefit of training (Business factors which may impact on results; Program design factors which may impact on results; and Training cohort factors which may impact on results)
 - Converting changes in “soft” skills to “hard” data
 - Adjusting the time horizon to more fully capture future benefits
 - Deciding on the level of data aggregation
 - Analytical techniques

A4.2. Employer perceptions of workplace training evaluation

There are a number of non-trivial reasons why employers may choose to invest (or to not invest) in training – as well as the type of evaluation method used.

A4.2.1. Reasons why employers evaluate workplace training programs

“In practice it seems that enterprise decisions about expenditure on training are made as an annual budget item, or as an act of faith, usually without any cost-benefit analysis” (Billett, 1995; Billett 1994; Coopers & Lybrand 1994).

“As demands on all employees, from the shopfloor to the boardroom increase, it will no longer be possible to justify training investment with a simple article of faith. The question, then, is not whether Australian organisations can evaluate training, but whether they choose to” (Davidson et al, 1997).

While the literature is generally cautious about making links between LLN and productivity, because of the complexity of the relationship and problems of measurement, almost all employers who have engaged in LLN programs report positive effects (Gray, 2006). They report that work effort, productivity and quality improve, while error rates and absenteeism decrease. Specifically, the research literature points to a set of common reasons why employers may conduct training evaluation, these include:

- Training budgets can be justified, maintained and expanded when it is shown to contribute to profit and is not seen as an act of faith or a cost of doing business – positioning training as an investment not an expenditure
- To determine the effectiveness and efficiency of training
- To evaluate the training method used and the use of time for trainer and employee.
- To determine if there was a change in time, cost, or behaviour
- To provide a more objective and shared understanding of the effectiveness of a program regardless of position/role within the organisation
- To provide evidence to management/stakeholders
- To identify areas for improvement and weakness
- To improve stakeholders' knowledge about what they are doing and why they are doing it
- To link with competitive business strategies and programs, e.g., TQM, JIT, LEAN
- To further examine reasons for choosing different training objectives and the various ways they can be achieved
- To build commitment to the training among workers and their supervisors e.g. time off-the-line is justified
- To require employers and their trainers to do additional evaluation beyond the “smile sheet”
- To encourage quality or continuous improvement practices – courses can be refined and fine-tuned
- Employers improve their ability to contain costs and maximize benefits for the organization
- To lift evaluation into an activity of intriguing investigative work instead of administrative drudgery
- To pass on savings to customers as most firms charge back the costs of internal training to line divisions using their products and services
- To test the economic feasibility of expansion plans, proposals, or targets
- To project future levels of educational costs
- To estimate the cost of alternative policies and of educational reforms or innovations.
- To compare alternative ways of achieving the same objective in order to select the most efficient or economical
- To compare the profitability of alternative investment projects
- To improve the efficiency of resource utilization
- To make informed choices between training options
- To compare the cost of training to other investment options, e.g., new equipment
- To promote the importance of evaluation
- To encourage transfer of training
- To project future training costs



- To focus training on behavioural and/or organizational change
- To compare the cost of training/retraining to new hires

Source: Kaminski and Lopes, 2009, McDonald, 1995, Clegg, 1987, James and Roffe, 2000, Mulvaney *et al*, 2006

A4.2.2. Reasons why employers do not evaluate workplace training programs

Recent literature discussing evaluation of workplace literacy and essential skills training raises the important issue of barriers to evaluation (Salomon, 2009). A recurring theme in the literature is the inherent challenge in demonstrating, with credible evidence, the impact of workplace training. According to Mikulecky & Lloyd (1993):

Workplace literacy programs have been offered by many organizations, both government and private, but not much is known about the effect of such programs on the job performance of the employees involved. For the most part, the organizations have regarded literacy programs more philanthropic than as business enterprises and so have not considered it appropriate to subject them to their usual cost-benefit analyses.

The research literature points to a set of common reasons why employers may not conduct training evaluation:

- Costs, direct and indirect, of allocating resources (i.e. personnel, time, space) to the task of evaluating training
- Staff are generally considered to be time-poor and must be persuaded that participation in the evaluation work will have some tangible downstream benefit to them/their business
- Difficulty of measurement, lack of adequate evaluation methodology
- Costs are known up front, before training, but benefits may accrue over time; and it's difficult to determine when to assess the impacts or benefits.
- Demands on stakeholders at various levels of the organisation to collate and collect information
- Maintaining a disciplined adherence to a planned research methodology over time
- A general lack of interest or initiative – not core business
- Lethargy and previous experiences,
- Anxiety about results and any criticism that may occur – if there are poor results, who takes ownership?
- Costs of training are known and expressed in dollars, but the benefits may be soft, subjective and difficult to quantify for conversion to dollars. Lack of expertise and staff capability
- Staff capability, specifically few staff have knowledge or skills which spans across the training and cost/benefit
- Maintaining continuity, buy-in and engagement over time in the face of staff turnover, organisational restructures etc
- May require customised software or adaptation of existing systems and processes to collect the necessary data
- Management attitudes and commitment to training and to employees, including their perceptions of where training adds value - difficulty in gaining 'buy-in'
- Opaqueness in the measurement criteria
- Employees may be unwilling to acknowledge that they have literacy problems and reluctant to take part in a program for fear of being personally stigmatised and labelled as a hindrance to company productivity
- Scepticism because of the level of subjectivity built-in to the research methods
- Monitoring and evaluation does not always suits business interests or needs
- Some employers are uncomfortable publicizing the basic skills problems of their employees
- Requests for impact data may actually disrupt productivity

Sources: Kaminski and Lopes, 2009; Gray, 2006; McDonald, 1995; Clegg, 1987; James and Roffe, 2000; Carnevale & Schulz, 1990; Bélanger and Robitaille 2008; Pye and Hattam, 2008

Box 1 Challenges to consider in ROTI analysis (Barker, 2001)

- The costs of training are known and expressed in dollars, but the benefits may be soft, subjective and difficult to quantify for conversion to dollars.
- It is difficult enough to get managers to send people for training without imposing additional requirements to collect data to document impact.
- Costs are known up front, before training, but benefits may accrue over time; and it's difficult to determine when to assess the impacts or benefits.
- Most trainers lack the time and accounting skills to do cost/benefit analysis.
- Requests for impact data may disrupt productivity.
- Many of the most popular training programs will be operated even if costs exceed benefits, so conducting ROTI may be a waste of time.
- The outcomes of ROTI could be damaging to the HR staff and to budget support from top managers, so it may be better not to know.
- It is difficult to attribute a person's behaviour to any particular reason, much less to a specific training event.
- The very act of collecting data on the dollar value of performance will tend to bias information that is elicited, making it hard to present an accurate picture.
- Course evaluations are viewed as inconsequential by some and assessment of impact as too time-consuming and costly.
 - Some training programs have been implemented for the wrong reasons (such as an effort to chase a popular fad or trend in the industry). A ROTI calculation for an unnecessary program will likely yield a negative value. Training won't help if the problem isn't lack of worker knowledge and skills.

Source: Barker, 2001

For many employers, especially small-medium enterprises, quantitative evaluation using controlled research methods is beyond their capabilities, in terms of the time, resources and expertise they are either able or willing to invest (Salomon, 2009). Importantly, some research posits the view that 'not all training can or should demonstrate a [return on training investment] ROTI' (Barker, 2001). Many of the most needed training programs will be operated even if costs exceed benefits, so conducting a cost-benefit analysis may be viewed as inconsequential and unnecessary. Barker (2001) describes a scenario where the training is deemed necessary, therefore valuable, by management and that it will be run regardless of the resulting financial returns to the business:

'...it may be that the company has made a corporate decision to support training whether or not observable returns result from the training. The training manager or human resources professional in this situation is under no obligation to demonstrate that training results in the application of skills on the job or that it is contributing to reduced injuries or errors. In this instance, the best option is to use a quick, easy and inexpensive approach to assessing the value of the program'.

In Canada, for example, employers have cited time and cost constraints, the complexity of the process, the comparative ease of relying on qualitative methods and indicators, a reluctance to "intensively monitor" employees, the "sensitive" nature of the process, and confidentiality concerns among workers (Salomon 2009). Misko (1996) found that companies' reluctance in providing financial information may be attributable to the respondents' (in many instances, training managers) lack of time to access records; it may also reflect a conscious decision not to advertise what they may consider to be market sensitive information. Misko (1996) further states that:

"...although companies in this study were able to identify a wide array of benefits derived from training, there is little evidence that companies formally evaluated the benefits of workplace training. One reason may be that formal evaluation requires substantial tracking of changes in employee performance perceived to be brought about by training, and companies do not have time to devote to that. Another reason may be that companies have a realistic understanding that it is difficult to tie any changes in work performance to a single factor when complex

organisational changes are occurring. The effects of training need to be seen in combination with an individual's motivation to employ skills learnt in training, his/her ability to transfer such skills to the job, as well as on-the-job supervision and positive reinforcement received for improved performance."

Similarly, a 2006 survey of Canadian businesses found that employers were "reluctant to try and measure the economic benefits of workplace literacy training or tie the results too closely to the bottom line", doubting that such programs were capable of producing an "immediate" impact, i.e. one that could be demonstrated and measured at the end of a LES training initiative (Plett 2007). Benseman and Sutton (2007) identified some of the implications of this 'poor cousin' status of LLN research which may impact on industry and enterprises' decision to evaluate:

- studies lack the scale, depth and sophistication necessary to demonstrate outcomes with a high degree of confidence and generalisability
- limited use of strategies that monitor and improve research quality such as peer review and publication of findings in refereed journals
- a limited pool of researchers and evaluators to draw on in this emerging field, meaning that the level of research and evaluation expertise is probably less than in more developed sectors. This is particularly true of expertise in quantitative research.

Davidson *et al.* (1997) provides a useful summary these issues:

'There is a significant difference between evidence and proof. In most cases, data limitations prevent the establishment of absolute proof – say, that training caused the change in performance. For example, the performance measurement or accounting system in the organization may not collect all the data which is required to evaluate full the results of training. Or perhaps there are other initiatives in the organization which may also contribute to performance improvements. Often, then, evaluation of training is seen as imprecise or just too hard. Managers would like to see it done, but are not sure of how go about it, and whether it will be effective.

However, this does not mean that the search for evidence should be abandoned. In most cases, best that can be achieved may be that the evidence is consistent with training have a positive impact on performance; but the acquisition of such evidence is still better than not trying to accumulate any evidence at all. Evidence that training is valuable will help managers to target their investment more effectively and will help gain employee commitment to training. Most critically, evidence of the value of training will help to ensure that investment in human capital is regarded as strategically important.

Evaluation is an investment in progress, enabling the initiation and management of responsible and appropriate change. Thus it is important to be able to evaluate training initiatives and to assess their impact on training and strategic objectives.'

A4.3. Methods used to evaluate workplace training programs

Although the reasons for evaluating training are relatively straightforward, establishing the links between training activities and improved outcomes is more difficult (Misko 2001). For years, the extent to which programs incorporate evaluation and the methods they use have been very difficult to determine with any precision, and this remains a problem (Salomon 2009).

Hartley and Horne (2011) summarises the issue of research methodologies this way:

Methodologies used to measure the benefits of improving literacy and numeracy amongst the workforce have typically focused on cost savings and/or productivity gains to the company, although some studies look more widely and include employee focused outcomes such as levels of promotion and rates of absenteeism. The issue of ideal methodologies based on large datasets (panel data is the most ideal) versus achievable methodologies based on availability of data and costs of new data collection is an important consideration.

In a landmark study, *The Impact of Workplace Literacy Programs: A New Model for Evaluating the Impact of Workplace Literacy Programs*, Mikulecky and Lloyd (1993) summarise the types of measures which sit beneath these methodologies - some of which are useful for assessing the impact of workplace literacy training on productivity:

- Records of absenteeism, safety, discipline, grievances, and suggestions were used to assess employee performance;
- Interviews and questionnaires were used to assess job-related literacy practices and processes of employees; and
- Supervisor ratings on various aspects of employee job competence and attitude were obtained.

To calculate a set of program outcomes, the following types of evaluation models are used to indicate the returns on investment to workplace training programs:

- Kirkpatrick/Phillips Levels of Evaluation (standardised 5 level evaluation model)
- Return on Training Investment (quantitative focus which measures financial returns)
- Return on Expectations (qualitative focus which compares objectives with perceived outcomes)
- Conversion of pre-post literacy testing for use in ROI calculations

A4.3.1. Kirkpatrick/Phillips Levels of Evaluation

In 1959, Donald Kirkpatrick developed a four-level framework for measuring training effectiveness (Catalanello and Kirkpatrick, 1968). These levels include reaction, learning, behaviour, and results. Each level measures an important area and all levels should be completed in sequential order to obtain a complete evaluation of a training program.

Reaction refers to how well the trainees liked and responded to the program. Learning measures the extent to which the trainees learned facts, approaches, and principles included in the training. The extent to which job behaviour changed due to the training is the behaviour level. The results level includes what was achieved and what was improved as a result of the training. Three areas evaluated within the results stage are perceptual, performance, and financial results (Schaffer and Keller, 2003, 8). Perceptual results are based on organizational benefits such as attitudes and initiatives. Performance results refer to measurable improvements within the organisation such as increased efficiencies and reductions in absenteeism. Financial results are the financial costs and benefits, such as increased sales and reduced overhead.

Table 3.1 marries the Kirkpatrick/Phillips Levels of Evaluation model with the emerging LLN workplace training model (far right column). The model represents the degree to which an organisation benefits from training in terms of the dollars, time, effort, and/or resources invested. The reaction and capability outcomes levels represent the short-term objectives of a training program. The application and worth outcomes levels represent the organisation's long-term goals²¹.

Both A.C. Hamblin and Jack J. Phillips propose a fifth level of evaluation. Hamblin refers to this level as the "ultimate value" or the "cost-efficiency" level (Hamblin, 1974; Phillips, 1997). Although not all authors acknowledge this fifth level, it can be viewed as an extension of level four. This level of evaluation specifically evaluates the monetary value of the training program. Level five evaluation converts the qualitative data from a level four evaluation into monetary values. At this level, both qualitative and quantitative data are used to determine the financial impact of the training program. The monetary benefits of the program are compared to the cost of implementation to determine the return on investment (Phillips, 1996).

Kirkpatrick and Kirkpatrick state that evaluation is much easier to perform when the measurement methods, tools, and techniques are defined at the start of the initiative. Once there is a clear understanding of the result to be accomplished, the next step is for training professionals to work with business managers and supervisors to create a tactical execution plan.

Program evaluations have tended to revolve around the first two levels, focussed on the learner and learning, with some reporting on Level 3 and very little on Level 4, which is "typically not addressed"

²¹ A combination of the Kirkpatrick and Phillips models, the Bell System/AT&T approach involves measuring the following 'outcomes':

- Reaction Outcomes - What are participants' opinions of the entire training program or specific parts of the program such as content, documentation, methods, or other general training activities?
- Capability Outcomes - What are participants supposed to know, think, accomplish, or produce at the conclusion of the training program (evaluated through classroom tests or exams)?
- Application Outcomes - What do participants know, think, accomplish, or produce in a workplace setting for which a training program has prepared them?
- Worth Outcomes - What is the value of training in relation to its cost?

(Gray and Sutton, 2007). Evaluation at Level Four is not easy “because it can be extraordinarily difficult to isolate the effects of the training alone on certain business metrics, [especially since] employers often implement more than one improvement strategy at a time” (Salomon, 2009). In Canada, for example, a 2005 report by the Conference Board indicated that only 12% of member organizations evaluated the business impact of their training programs (Salomon 2009).

While evaluation has traditionally focused on learner outcomes, a small but growing number of evaluations are placing an emphasis on the fourth level to measure employer gains (e.g. Canada’s Measures of Success, Upskilling Program NZ). It is the fifth level, that which measures the return on investment (ROI) where studies are at their most sparse and incomplete. This level of cost-benefit analysis is not widely practiced, nor are training personnel, generally, trained in its application (Lombardo, 1989).

For some, conducting ROTI is a one-time-only process to evaluate a particular training program, compare options or forecast costs. Other enterprises may incorporate ROTI into business operations in as an ongoing strategy. Regardless of the drivers for conducting ROTI evaluation, Barker (2001) argues:

“...it’s not necessary to evaluate every training program through all four (or five) levels. A good general rule of thumb might be to evaluate all training for reactions, but only 50% to 70% for learning, 30% for behaviour, 10% to 15% for results, and 5% for ROI”.

Phillips (1994) provides 18 enterprise case studies, from a range of industries and environments, to demonstrate the range of approaches used and issues addressed by the case study organisations. All demonstrate impressive results, with returns on training investment from 150% to 2000%, together with other documented benefits. However, Philips (1996) suggests that only 10% of interventions should be explored at ROI level.

Ellis (2005) defines specific criteria to identify the most appropriate interventions to be calculated at the ROI level: high level of visibility; those with strong management interest; and those with strong ties to company objectives. Moy (2001) cautions the following on applying ROI to workplace training:

The method for calculating ROI in training may not suit all companies in the same way. In choosing the method for determining the ROI in training, companies may need to decide whether or not the cost or effort involved in using a certain approach is worth it. A key factor in helping make this decision is the extent to which the enterprise requires such a calculation to be made.

...Most enterprises, and particularly SMEs, do not have the need, resources or expertise to use rigorous, highly technical approaches for evaluating returns on training. As a result, there is a general lack of enterprise interest in detailed investigation of returns from investment in training frequently advocated in the literature. While researchers and some practitioners have struggled with the dilemma of rigour versus practicality in designing and undertaking ROTI studies, the research evidence demonstrates the importance of providing timely, useful and accessible information that is valued by enterprise decision-makers, rather than focussing on traditional notions of rigour or trying to provide absolute proof of the impact of training on enterprise productivity and profits.

Only around one-third of the workplace basic skills training programs funded through the European Union’s Leonardo Da Vinci project included financial benefits in their evaluations (Pye and Hattam, 2008). Nevertheless, this is substantially higher than very low proportion (5%) of training evaluations more generally that Swanson (2001) had found attempted to assess the financial benefits of training to the organisation.

Lynch *et al.* (2006) illuminates the research problems that must be confronted when attempting to estimate the ROI from training programs:

An important problem is that return on investment from training programs is typically unknown. More specifically, the results of training and development programs are not evaluated in terms of their effect on business results. The impact of training and development on organizational profitability is difficult to evaluate and often not attempted. The benefits of programs are often subjective and difficult to quantify in monetary terms. Benefits also accrue over time and the optimal point of time to evaluate is ambiguous. Because of the lack of evaluation, the effort put into developing human capital is often seen as an expense and not an investment.

Salomon (2009) describes the quality of research this way:

“Disagreement or doubt stems from the lack of research specifically on the impact of LES training, as opposed to skills enhancement or training more generally, on productivity. Those who favour quantitative methods criticize the little research that has been done for lack of rigour, i.e. using quantitative methodology, prompting one report to observe that claims of employer outcomes appear to be ultimately “based on faith as much as evidence” (Merrifield 2007).”

To improve the quality of program evaluation, some argue that it is necessary to determine at what level it is adequate to evaluate a particular program for each enterprise and its stakeholders – levels 4 and 5 may not be appropriate (Ellis, 2005). Put simply, *“it’s better to measure strategically than constantly”*. The ROTI process will add costs and time to the evaluation of programs, although a comprehensive ROTI process should not cost more than 4-5 percent of the overall training and HRD budget (Barker, 2001).

Most evaluations fall short of achieving a key objective – that is, to demonstrate, in quantifiable terms, the impact of training on business performance using some variation of Kirkpatrick’s Levels 4 and 5 evaluation framework (e.g. productivity, sales, wastage etc). Ananiadou *et al.* (2003) identifies a set of recurring ‘deficiencies in the workplace LLN literature’, which may assist with understanding why evaluations fall short of meeting the criteria for Levels 3 (impacts on learners’ behaviour at work), 4 (impacts on organisational performance) and 5 (ROI):

- the small numbers of studies;
- small sample sizes;
- limited sources of data and an overreliance on self-reported information;
- lack of pre-course and post-course comparisons;
- poor completion rates in post-course assessments;
- lack of quantitative studies; and
- lack of controls.

Table A4.1 Kirkpatrick/Phillips Levels of Evaluation in LLN training context

	Level	Frequency	Training more generally	LLN training
1	Reaction and Planned Action ("smilesheet" – most commonly evaluated level)	— Typically each learning event.	<ul style="list-style-type: none"> How learners felt about the training Customer (Trainee) satisfaction – their opinion – what did they like, what did they learn, was anything missing, Likert rating scale feedback. Good facilitator, interesting/useful subject, adequate facilities, opinion of atmosphere, scheduling, additional comments. 	Learners: <ol style="list-style-type: none"> were satisfied that program met their needs, goals were satisfied with the implementation of the program were satisfied with: the program's relevance to their work, curriculum, pedagogical approach, instructors, scheduling, facilities completed the program would recommend the program to others
2	Learning	— Typically pre- and post-training assessments	<ul style="list-style-type: none"> Whether they learnt anything Change in attitude, skills, knowledge. Pre/post-test, test performance, demonstration, role play. 	"Competencies gained" – skills were upgraded or new skills were learned <ol style="list-style-type: none"> LLN or specific components of LLN job-specific knowledge and skills ('hard-skills') changed learner attitudes ("soft skills") – improved morale, self-confidence, job-satisfaction, interest in further learning
3	Application and Implementation (Behaviour) (assessment of "program effectiveness")	— Pre- and post-training, and particular periods after training is complete (e.g., 3 months, 6 months, 1 year)	<ul style="list-style-type: none"> Was the learning transferred to the job? Doing things differently at work. Pre-/post-test, observation, interview, allow time for change (e.g. Ask employee, supervisor, subordinate for their perception of change in attitude or performance) 	"Competencies applied" Skills learned were applied to work – learners improved at: <ol style="list-style-type: none"> performing and completing job tasks understanding, organizing, planning, problem-solving team work working independently Interacting with others (written and oral communication, email) using new technology taking initiative (participating in workplace committees, union activity)
4	Business Impact (Results) (the "bottom-line" and least evaluated level)	— Regular intervals over the calendar or fiscal year; monthly or quarterly is typical	<ul style="list-style-type: none"> Did training achieve its objectives? Final overall change for the business as a result of the training program (e.g. Improved quality, improved production, decreased costs, increased job satisfaction, reduced problems or accidents, increased sales) 	Productivity improved: <ol style="list-style-type: none"> less absenteeism fewer workplace accidents less waste increased employee retention better sales cost savings quality improvements improved customer service more promotion and wage increases
5	ROI	— With each new training event or when significant changes are made to existing events.	<ul style="list-style-type: none"> Costs of training vs. benefits of training (e.g. how did the bottom line change? were the benefits greater than the cost?) 	$ROI (\%) = \frac{(\text{Benefits of LLN training} - \text{Cost of LLN training})}{\text{Cost of LLN training}} * 100$

Source: Adaptation from Phillips & Kirkpatrick Model and Measures of Success, 2012

A4.3.2. Return on Training Investment

Since the early 1990s, ROI and cost-benefit studies which demonstrate the bottom-line contribution of training have received increased attention in the literature and promotion as ‘the ultimate level of evaluation’ (Phillips 1991). Phillips (1991) traces the term return on investment to its origins in the finance and accounting field. Calculating ROI began in the manufacturing sector, where it was relatively more practicable to measure time to complete a task and the number of widgets produced (Kaminski and Lopes, 2009).

As an approach to training evaluation, these approaches have resulted from the inability of conventional accounting systems to provide adequate data for decision-making about training resource use (see Carnevale & Schulz 1990 and Plott, 1998) and the tendency for training to be seen as an annual cost item, rather than an investment (Employment Services, Deakin University 1997). With some exceptions, ROI evaluations of workplace training remains on the margins of practice because of the complexity and substantial expense of the exercise, particularly for smaller organizations (Salomon 2009).

The ROI is a ratio of the present value of the future benefits net of the present value of the investment cost to the present value of the cost of the investment. In other words, it is the net benefit of the investment. It can be expressed as a percentage, a percentage that is annualized, a gross return in dollars-per-dollar invested, or as a payback period (Hollenback, 2012). All benefits of the training are given a monetary value, summed, and compared to the costs, including the actual expenditure on (investment in) the training, to determine whether the program yielded a net benefit or net costs.

Moy and McDonald (2000) proposes that to re-orient the field of research away from the finance and accounting mould which it came from, a much broader approach based on the notion of a return of *training* investment (ROTI). Consideration of definitional and measurement issues suggests that a term other than ROI should be used in contexts where training is evaluated to identify a range of qualitative and quantitative benefits produced by investing in the learning and development of employees. Use of a term such as return on *training* investment appears preferable to using (or misusing) return on investment, which has a narrower, quantitative meaning within business contexts (Barker, 2001).

An advantage of the return on training investment approach is that it allows the HR functions and those involved with the training to speak the same financial language as the management team and, hopefully, gain increased credibility and input into strategic decisions with regard to training programs (Purcell, 2000). A number of quality and efficiency methodologies consider ROI or use very similar ideas. These include Total Quality Management (TQM); Baldrige; Six Sigma; and Business Process Improvement.

A theoretical exploration of ROTI reveals that it is linked to a large number of concepts, some of which are noted by Barker (2001):

- formal financial accounting: investments, assets, capital, growth, risk and return in business;
- HRD for “employees” and knowledge workers;
- productivity measurement, industrial engineering, quality management;
- organizational psychology and decision theory;
- human capital assets, accounting, management;
- evaluation (program, training, learning) for comparison of interventions and for accountability;
- outcomes and impacts (training, learning, intended and unintended, short-term and long-term, positive and negative, different stakeholders);
- social costs and benefits of training as a form of human capital development;
- competency-based training; and
- career development, higher education/training for the individual.

Terminology is sometimes confusing and redundant, and ROTI is a term that is used almost synonymously with many other terms, such as:

- evaluation: the formal process of assessing the quality of a product or service against standards for acceptability and/or excellence
- validation: the process of ensuring acceptability for continuance of a program or service

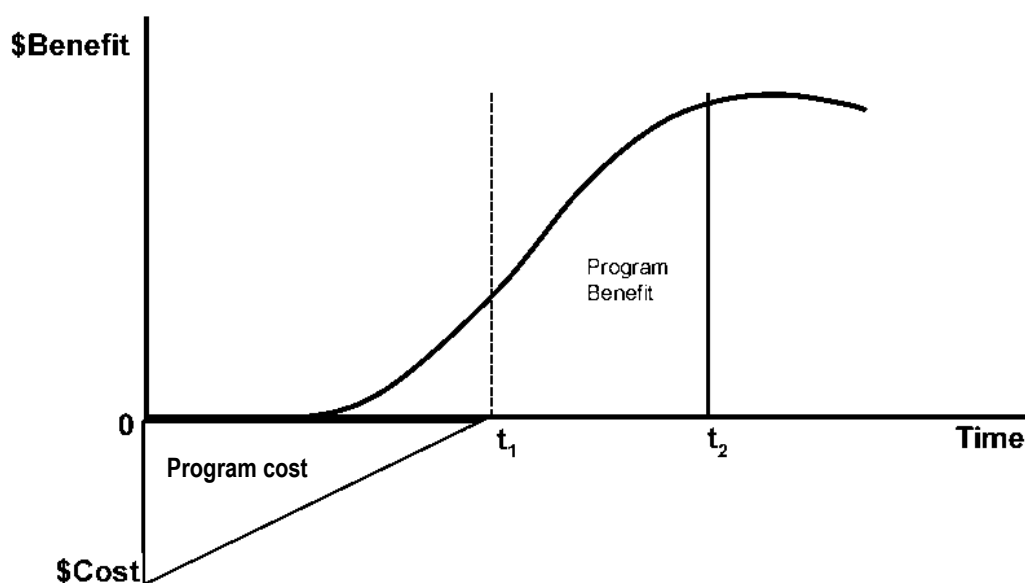
- “proof-of-concept” – used to mean the process of seeking evidence to support or refute a new concept
- cost-benefit analysis or benefit - cost ratio
- cost-effectiveness, with effectiveness being defined as the extent to which the product/service does what it claims to or is intended to vis-à-vis the associated costs
- cost-utility analysis, with utility related to organizational or business objectives
- return on expectation (ROE): examines the perceived market value of training compared to program costs
- value for money: the extent to which public funds are expended economically and efficiently and the extent to which the related programs are effective in meeting their objectives²
- training investment analysis: a forecast of monetary benefits that are likely to be gained from training, before the training is undertaken
- training transfer which may be part of the training plan or part of the intended outcomes/benefits

ROIs are derived by individuals, enterprises, governments, or societies, either singly or in combination (Misko, 2001). At the enterprise level, the potential number of stakeholders involved in a typical training evaluation can be significant depending on the research method deemed appropriate for the context. Situations vary, but these may include: workers, their supervisors, managers, HR/training functions, finance functions, trainers and facilitators. Barker (2001) points out that these different perspectives are further categorised by the types of costs and benefits:

- tangible / measurable and/or intangible / difficult to measure
- immediate / short-term and/or evolving / long-term
- positive and/or negative
- intended or planned and/or unintended but achieved
- once-off and/or ongoing
- targeted for new employees or long-standing employees
- of equal value or prioritized in importance
- essential and/or optional

Figure A4.1 shows the relationship between program costs and program benefits (y-axis) and time (x-axis). The program cost (or budget) is progressively disbursed up until training completes – typically most costs are borne early. Program benefits may become apparent before training completes, be measured at points t_1 (e.g. directly after training completes) and t_2 (e.g. 6 months after training completes). The effects of the training program, taken in isolation and without further training, will diminish over time while the returns to additional training are less than the average returns (Long, 2001).

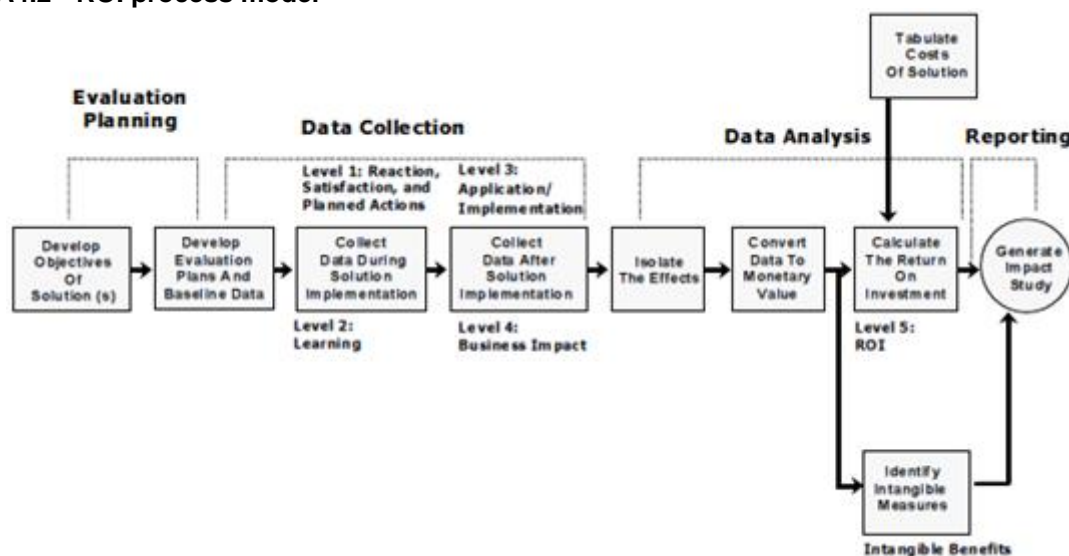
Figure A4.1 ROI process model (general terms)



Source: Wang, G. (2000). DPT Consulting Group cited in Stetar, B. (2003). Can We Really Measure Training ROI (Do We Really Want To?), University of Tennessee.

Figure A4.2 shows Phillips' ROI methodology in the form of a process: evaluation planning; data collection; data analysis; and reporting.

Figure A4.2 ROI process model



Source: Phillips ROI Methodology (Phillips 2001)

Phillips calculated return on investment using program benefits and costs. The benefit/cost ratio (BCR) is the program benefits divided by cost:

$$\text{Benefit—Cost Ratio (BCR)} = \frac{\text{Program benefits}}{\text{Program costs}}$$

The ROI on the costs of training is obtained by expressing the net benefit of training (benefit – cost) as a ratio of the cost, and multiplying by 100. The formula to calculate the ROI in this way is:

$$\text{Return on Investment (ROI) (\%)} = \frac{(\text{Benefit} - \text{Cost})}{\text{Cost}} * 100$$

A result *greater than* 100 percent means that the program has a net benefit after accounting for the costs involved in running it. For instance, an ROI% = 150% means that the program yielded a 150 percent return on money invested; i.e., the program yielded \$1.50 for every dollar that the program cost.

A result *less than* 100 percent means the program had a net cost. This means that the program did not recoup its cost after accounting for the benefit. When this happens, you may want to look for a “hidden” or social benefit that is not quantifiable, or perhaps the training is mandatory and must be done regardless of the ROI.

As an alternative to the ‘return on investment’ model, Stetar (2003) outlines the following alternative model for estimating the ‘financial impact’ of a training program:

$$\text{FINANCIAL IMPACT} = d * SD_{\$} * JSI * N$$

Under this formulation the financial impact from training is driven by four factors:

d = shift in performance by average individual undergoing training

$SD_{\$}$ = the value in \$ of the performance shift

JSI = the percentage of job skills impacted by training

N = number of participants who underwent training

The implications of this model for the present study are: the need to measure changes in trainee performance as a result of training; and the need to attribute a monetary value to the performance change

Schmidt, Hunter, McKenzie and Muldrow (1979) outline the calculation of ‘utility’ or cost effectiveness of training program requires:

- An overall measure of job performance of each employee trained and of a comparable group of untrained workers (This could be either a supervisor rating or be based on production outcomes).
- A measure of the dollar value to the company of the difference between outstanding and average employees (This estimate of standard deviation of performance is known as a value).
- The expected duration of the training’s effect.
- The cost of the training.

This calculation produces a ‘net utility to a company’

Net utility to the Company

= Years duration of effect \times Number trained \times Performance difference \times Value

– Number trained \times Cost per trainee

Long (in Smith, 2001) summarises the issue of average and marginal returns as follows:

The estimates of returns to training are average returns. It is marginal returns that count—the benefits that follow from an extra hour of training rather than the total benefits that follow from a week of training. If there are rapidly diminishing returns to training (the 41st hour of training produces much less benefit than the first hour, or the training of the 100th worker produces less benefit than the training of the first), then high average returns might be quite consistent with reasonable marginal returns. There would then be no evidence of under-provision of training.

This is where ROI really becomes useful. Used properly, it can be an objective method to compare the benefits, costs and returns for two or more programs. Very different returns to training activities are possible. Training is a prerequisite for some forms of work—a feature that implies very high initial returns. The returns to training for other forms of work may be modest.

The concept of ROI in training, or ROTI, is gaining in importance, utilization, and complexity. ROTI should concern whomever or whatever makes the investment – the employer/business, the employee/trainee, perhaps the agency or government that funded a portion of the training, perhaps the training agency or provider (Barker, 2001).

The potential beneficiaries of training of any type are not restricted to the enterprises that provide the training and the workers who receive that training. For example, other enterprises can benefit by recruiting already-trained workers. Other workers, both in the enterprise that supported the training and in enterprises that recruit the trained labour, can learn new skills by observing trained workers. Consumers can benefit if the training results in new products, products of higher quality, or products at a cheaper price. And, to the extent that workers and enterprises benefit from training, governments will benefit from increased taxation revenue (Long, 2001).

Where studies have been conducted of enterprise returns on training investment, they overwhelmingly indicate that firms recoup their investments in training many times over in raised productivity and enterprise performance (Smith, 2001). Despite most studies showing a very high return, it is likely that most results are an under-estimation of the total net benefits of a training program.

A track record of generally positive employer perceptions of value – anecdotal or otherwise – may have created an environment where workplace literacy training is offered to employees in spite of the limited evidence available of its impact. While anecdotal and subjective reports are the main source of evidence and almost without exception positive, the number of studies is minimal, and hard data is either lacking or hedged with cautions (Gray, 2006). On a general level, literacy and essential skills training “is too easily assumed to produce positive results in and of itself” (Bélanger and Robitaille 2008 in Salomon, 2009). Benseman (2014) summarises these issues:

Those employers who have sponsored basic skills training are generally positive about the experience. Although not all those interviewed by researchers have perceived any impact on measured outcomes (e.g., productivity), there is no evidence that employers who have sponsored basic skills training have found it to be either burdensome or an unnecessary expense.

Furthermore, the impact of LLN training may need to incorporate factors and benefits not necessarily associated with the training itself e.g. employer willingness to support training and develop the skills of their workers. As Gray (2006) says:

“a company’s willingness to invest in training may be enough to increase employees’ confidence, self-esteem and sense of loyalty, without necessarily being associated with significant gains in LLN skills.”

Nevertheless, there are authors who remind us that although “not all data can be converted to monetary values...true ROTI requires that it be attempted” Barker (2001) suggesting some inherent tension between the ROI evaluation framework and the context in which it is being applied. Phillips himself cautions about the use of the accounting term ROI and the limitations of its application within training contexts:

“Finance and accounting personnel may actually take issue with calculations involving the return on investment for efforts such as an HRD program. Nevertheless, the expression is fairly common and conveys an adequate meaning of financial evaluation. Some professionals suggest that a more appropriate name is return on training (ROT), or simply return on human resource development.” (Phillips 1991 in Moy, 2001)

Burke (1995) believes that while rate of return on training studies, and tracer studies of graduates of formal courses and off the -job training can provide useful information, it is important not to inflate the claims that findings of such studies can produce. Likewise, Billett (1994) cautions against conducting ROTI calculations until better data and supporting systems becomes available:

“It has been suggested that until an effective means of determining the full-benefit of training is available, that training managers should be cautious with cost-benefit analysis lest they be denied credit for the full benefit of their programs (Lombardo, 1989). For example, how can attitudinal change, be quantified in a way that be confidently attributed to productivity gains?”

It is often not possible to value costs and benefits in monetary terms, especially in the education, training, health and aged care sectors. Units of measurement may be captured in monetary terms; however, this is dependent on a range of factors such as the data available, the cost of collecting new data and the techniques that can be used to estimate costs and benefits (Hartley and Horne, 2011). More often, costs and benefits will be measured in a non-monetary unit based on literacy assessments or supervisor observation or worker self-assessment.

A4.3.3. Using Levels 4 and 5 to measure impact of training on productivity

While there is an extensive body of literature has explored the relationship between productivity and skill development in general, relatively little literature has explored the relationship between LLN and productivity (Benseman, 2014). All of it is cautionary about making such links because of the complexity of the relationship and problems of measurement (Gray, 2006).

In a review to inform development of the Australian Workplace English Language and Language and Literacy (WELL) Program, Woods *et al.* (2006) found that, internationally:

“While dollar values of the outcomes of workplace literacy programs have been estimated, there has been little attempt to compare these to the costs of the programs”

Econometric studies attempt to establish a direct link between training investment and enterprise performance—usually levels of labour productivity (Smith, 2001). These studies are based on human capital theory, which asserts that individual employees and enterprises will benefit from their investments in training. Enterprises will enjoy a higher level of labour productivity because employees will be able to work more efficiently and effectively.

There are at least two types of evaluation models which aim to estimate the value of a change in LLN skills – formative and summative. While the formative evaluation provides early information about the effectiveness of program operation, the summative evaluation provides information about whether the program achieved its goals.

a) **Formative evaluation** of a workplace literacy program takes place during beginning and middle stages of program operation. Its purpose is to identify problem areas which can be addressed and modified while change is still possible and productive. Formative evaluation usually involves the use of interviews, document analysis, and observations to determine:

- The degree to which all involved with the program understand and share program goals
- Whether the resources in terms of personnel, materials, learning environment, and learner time are sufficient, given current knowledge, to achieve the goals
- Whether the learning processes and methods employed appear to be sufficient to accomplish the goals

The expected, perceived or actual impact of training is tracked forward into work practices by considering the design features of training, their expected objectives across a range of potential result areas and tracking changes in those areas e.g. job performance, productivity, errors, waste etc.

b) **Summative evaluation** usually takes place at the end of program operation and is designed to assess how well the workplace literacy program has succeeded. Summative evaluation requires gathering pre- and post-program data and then analyzing that data. This implies using and developing measures directly related to program goals. Typical goals for workplace literacy programs include improved learner literacy abilities, improved

literacy practices at work and elsewhere, changed learner beliefs about literacy, self, and education, and improved learner productivity on the job.

Assessment is often accomplished through use of formal standardized tests, informally constructed tests related to the workplace, questionnaires related to literacy practices, and interviews with learners and supervisors. In addition, company records and ratings on productivity, safety, attendance, and enrolment in subsequent classes can expand the evidence available for assessing program impact.

Any changes in business outcomes are traced back to training are explored through survey/interview of responsible staff to estimate the extent to which the LLN training could account for the change and ascribe a dollar value to that contribution.

Mikulecky and Lloyd (1993) put the evaluation model itself under scrutiny. They developed several points of interest from their pilot assessment.

- Questionnaires, although time-efficient, seem to be less effective than interviews in gathering accurate information.
- Because of the range of learner abilities, workplace scenarios need to include questions at a variety of difficulties; Cloze tests of varying difficulty may also be necessary.
- It is desirable to have direct measures of learner productivity as well as more reliable ways of obtaining supervisor ratings.

In a landmark Australian study, *Return on Training Investment: Development of Enterprise Frameworks*, Davidson *et al.* (1997) develop a typology to explain the different levels of sophistication of training evaluation: budget evaluation, skills evaluation, project evaluation and strategic evaluation. Table A4.2 links these four stages to a set of six 'evaluation techniques':

- Budgeted targets
- Subjective analysis after training
- Competencies gained
- Competencies applied
- Quantitative analysis of training on organizational performance
- Strategic evaluation

Importantly, Davidson *et al.* (1997) caution that:

"It is important to note the data requirements become more onerous as you progress through the stages and through the different groups of techniques. Ideally you should decide which stage is most appropriate to your organisation, set realistic schedules for collecting data, and then set up the appropriate structures to carry out the actual evaluation".

Table A4.2 Evaluation Techniques in Davidson *et al.* (1997)

		A	B	C	D	E	F
		Budgeted targets	Subjective analysis after training	Competencies gained	Competencies applied	Quantitative analysis of training on org. performance	Strategic evaluation
Budget evaluation	e.g. has the budget been spent? Have the designated number of days been exhausted?	✓					
Skills evaluation	e.g. what skills do we need? Does the training deliver those skills?		✓	✓	✓		
Project evaluation	e.g. have the project goals and performance indicators for the project been met?		✓	✓	✓	✓	
Strategic evaluation	e.g. what is the return on training investment? To what extent has the project met the strategic objectives of the organisation?					✓	✓

Source: Davidson *et al.*, 1997

Table A4.3 Stages of evaluation in Davidson *et al*

Type	Purpose	Data required	Data source	Evaluation techniques
Type A: Budgeted targets	To assess whether budgeted targets have been attained	<ul style="list-style-type: none"> Percentage of wage bill (%) Dollar expenditure on training (\$) Number of training days 	<ul style="list-style-type: none"> Accounting records Personnel records 	<ul style="list-style-type: none"> Comparison of actual and budgeted expenditure
Type B: Subjective analysis after training	To get information on how trainee felt about the training	<ul style="list-style-type: none"> Trainees' reaction to training program. Information sought may include trainees' reaction to training time and quality of training, personal satisfaction derived, and recommendations for change 	<ul style="list-style-type: none"> Trainees' response to questionnaire Interview with supervisor 	<ul style="list-style-type: none"> Happy sheets Likert scale Qualitative or quantitative analysis of proportion of respondents reacting favourably.
Type C: Competencies gained	To evaluate the degree to which the training has led to an increase in training competencies ²² .	<ul style="list-style-type: none"> Competencies and performance before and after training Customer satisfaction before and after training 	<ul style="list-style-type: none"> Written or physical test of competence Test of competence sometime after training (to test retention) Customer surveys Skills audit 	<ul style="list-style-type: none"> Evaluation of changes in customer satisfaction Changes in operational performance This evaluation may be conducted after training or, ideally, compared skills levels before and after training²³.
Type D: Competencies applied	To determine whether trainees are applying their new or increased skills and competencies to their work ²⁴ .	<ul style="list-style-type: none"> Application of acquired competencies in the workplace Number of trainees using new competencies 	<ul style="list-style-type: none"> Assessment of trainee competencies by questionnaire, supervisor or team leader Test application of competencies in the workplace²⁵. 	<ul style="list-style-type: none"> Analysis of perceptions/qualitative data Pre- and post-training quantitative analysis Techniques for assessing qualitative change include reaction surveys, customer surveys, and non-parametric testing²⁶.
Type E: Quantitative analysis of training on organizational performance	To provide quantitative information on whether the benefits of training exceed its costs. These techniques provide 'hard' evidence which is comparable to that used to evaluate investments in capital ²⁷ .	<ul style="list-style-type: none"> \$ costs of training, in one budget period or over time \$ benefits of training, in one budget period or over time 	<ul style="list-style-type: none"> Accounting records Records of changes in performance or customer satisfaction 	<ul style="list-style-type: none"> Return on Investment (ROI) for evaluation at a point in time Net Present Value (NPV) for evaluation of return over time Regression Analysis
Type F: Strategic evaluation	To link training and learning explicitly to strategic objectives. Training and learning are of high strategic importance for the organisation and the purpose of training is to provide long-term competitive advantage.	<ul style="list-style-type: none"> Strategic objectives, and performance on corporate key performance indicators (KPIs) before and after training process 	<ul style="list-style-type: none"> Accounting records, management and performance reports 	<ul style="list-style-type: none"> Target to actual performance comparison Performance against benchmarks Multivariate analysis

Source: Davidson *et al.*, 1997²² Recommended when trainees need to acquire a specific skill or to retain a particular body of knowledge²³ Evaluation at this level requires a testing procedure which will record accurately the increase in skills acquired as a result of training. The demonstration or tests may be physical, mental, written, or they can be computer based.²⁴ These techniques are ideal when the training objective is to change behaviour on the job. Behavioural changes may require training in both technical and 'soft' skills. Often, training in leadership, team development, and communication skills are evaluated with these techniques.²⁵ The primary data for this evaluation level are based on individual performance figures, either perceived or real.²⁶ Quantitative testing may also be carried out, including post- and pre- and post-training analysis, with or without the use of control groups; and probability testing such as t-tests.²⁷ By 'hard' evidence, we mean that the data used are not based on subjective evaluations of workers, supervisors or customers, but are quantitative, objective and derived from accounting or production records. Evaluations relate to bottom-line outcomes, and are necessary to establish a link between training and financial data and when training objectives have a high organisational priority.

Box 2 Mikulecky and Lloyd (1993) on 'Assessing the Impact of Workplace Literacy Programs on Productivity'

In a landmark study, *The Impact of Workplace Literacy Programs: A New Model for Evaluating the Impact of Workplace Literacy Programs*, Mikulecky and Lloyd (1993) suggest that a workplace literacy program should have a positive and measurable impact on productivity. However, most companies do not have an evaluation methodology and therefore can not easily recognize the impact on productivity of training workers.

One of the major goals of this study was to develop a model for evaluating workplace literacy programs. For the most part, the pilot assessments validated the utility of a broad-based conceptual framework of adult literacy learning in the workplace. It was possible and productive to note gains in areas of learner literacy beliefs, practices, processes and abilities, plans, productivity, and family activities. A good deal was also learned about the limitations and pitfalls of particular evaluation approaches and methods.

It was not possible, for different reasons at the two companies participating in this project, to obtain data on the actual output of the individual employees involved in training. Data relating to employee attitudes were collected on: absenteeism; grievances submitted; discipline records; workplace safety records; suggestions made; and suggestions accepted.

The authors state that well-evaluated workplace literacy programs gather baseline data before instruction begins. Typically data is gathered on the reading abilities, practices, and beliefs of learners. In addition, pre-program data is gathered on worker productivity or any other goal espoused by the program. Data gathering is accomplished using formal tests, informally constructed tests related to workplace expectations, questionnaires, and interviews with learners and sometimes supervisors. In addition, company records on productivity, safety, attendance, and enrolment in subsequent classes can expand the evidence available for assessing program impact.

Such company information establishes a base for later comparisons to end-of-program performance. At the end of the program, all learners are once again assessed using the same instruments. In some cases, it is possible to compare the performances of learners in a workplace literacy program to those of a control group of comparable employees who haven't yet been able to receive workplace literacy training. To do this, the control group takes pre and post assessments which parallel those taken by the instructional group.

Mikulecky and Lloyd (1993)'s review of the literature on productivity assessment, now more than 20 years old, shows that little is known about the effect of workplace literacy programs on job performance, but there is some evidence of the value of such programs and of the costs associated with lack of training.

There are methods to assess the impact on productivity of workplace literacy programs. A program can be assessed using employee output and such indicators as safety, absenteeism, and retention, with these measures taken both before and after training. Also, employees can be rated by their supervisors on various aspects of job competence and attitude, and changes in these ratings can be used in the calculation of the dollar value of the program to the company.

The study finds that it is possible to perform a broad-scale assessment of workplace literacy programs in order to measure the impact on learners, their families, and their productivity. The results of the study demonstrate some improvement in each aspect of the assessment model. However, gains appear to be limited to what is taught; there is very little transfer to areas not addressed by instruction.

Source: Mikulecky and Lloyd (1993)

The productivity benefits that the enterprise reaps will be passed on to the individual worker through higher wages. Thus, many of these studies track the wages of workers who have received training and deduce that these higher wages must reflect the productivity dividend that the enterprise gains from investment in training. This approach, however, has some problems in that there are many other factors, which may affect the wages of workers other than training.

Catts (1996) developed a linked analysis which uses the four levels of evidence proposed by Kirkpatrick. Once it is confirmed that training has occurred evidence is collected about staff responses to the training (level one), the competencies achieved (level two) evidence that the skills are used and maintained (level three) and evidence of effects on business performance (level four). Catts worked on the principle that *“it is concluded that only where there is evidence that each step in this link is confirmed can the link between training and business performance be claimed.”*

Firstly, it is important to review what is meant by productivity and how these concepts may be applied to the specific context of workplace literacy programs. Productivity is a measure of the rate at which outputs of goods and services are produced per unit of input (labour, capital, raw materials, etc). Productivity measures are used at the level of firms, industries and entire economies. Like cost/benefit and ROI measures, it is calculated as the ratio of the amount of outputs produced to some measure of the amount of inputs used.

$$Productivity = \frac{Outputs}{Inputs}$$

Productivity calculations are also dependent on the context and the selection of input and output measures – decisions which can produce different results and interpretations.

Improving productivity can have connotations of economising on the use of inputs — for example, adopting efficient production processes that minimise waste. Equally, improving productivity can have connotations of yielding more output — for example, using resources in activities or with technologies that generate more output.

Productivity can be expressed as a physical measure (for example, number of cars produced per employee), a monetary measure (for example, thousands of dollars of output per hour worked), or an index (for example, output per unit of labour).

In principle, inputs can be broadly defined to cover people's time, their skills, land, raw materials, machinery and equipment, energy (for example, electricity) and so on. But, most commonly, inputs are defined in terms of: labour (number of employees or hours of work) and capital (buildings, machinery and equipment, etc).

Labour productivity is the ratio of output to the input of labour. Typically, it is measured as the amount of output produced per hour worked. Multifactor productivity is the ratio of output to the combined input of labour and capital. Sometimes this measure is referred to as total factor productivity. Any improvement in the productivity of workers owing to training is assumed to result in increased wages and may be expressed as either a wage effect (a percentage increase in wages) or (less frequently) as a rate of return (an interest rate that equates the flow of benefits and costs over time) (Long, 2001).

The measurement of 'productivity' varies considerably by industry sector. The nature of job tasks and production in some industry sectors lend themselves more easily to the measurement than others. For example, the ease with which productivity can be measured in a company undertaking a lean manufacturing program compared with a program to improve documentation in an aged care service provider are vast.

Labour productivity should be interpreted carefully if used as a measure of efficiency. In particular, it reflects more than just the efficiency or productivity of workers. Labour productivity is the ratio of output to labour input; and output is influenced by many factors that are outside of workers' influence — including the nature and amount of capital equipment that is available, the introduction of new technologies, management practices and so on.

Box 3 Moy and McDonald (2000) on ROTI studies

Designing and undertaking ROTI studies

The difficulties and complexities of undertaking ROTI studies are highlighted repeatedly by researchers and human resources practitioners. Challenges include:

- difficulties in designing experimental studies involving control groups, which may be more rigorous in an academic sense, but are rare in practice (OTFE 1998)
- problems of timing and resources, including the prospect of benefits accruing after the evaluation period (Mitchell 1994; Selby Smith 1996; Shackleton 1993)
- data access and collection issues, including sample selection, access to data (such as personnel records which may be confidential) and access to data held by other functional units within the enterprise (Mitchell 1994; Billett 1994)
- the lack of practical, standardised approaches for evaluating ROTI (Sadler-Smith, 1999; Bassi & van Buren 1998)

Selecting output measures and analysing and interpreting results

Of all the issues surrounding ROTI, measurement issues are most frequently identified as a disincentive for ROTI evaluation, especially:

- the impracticality or impossibility of controlling for all variables (Mitchell 1994; Billett 1998)
- difficulties in isolating the benefits of training and quantifying all costs and benefits (OTFE 1998)
- naive efforts to apply quantitative approaches, such as ROI, in contexts which are unrealistic and impractical (Phillips 1991, 1997)
- differences in expectations about what can be measured (McDonald 1995)

A4.3.4. Return on Expectations

A major recent study, the Canadian Measures of Success contributes the following definition and rationale for its use:

Return on expectations (ROE) is the process of estimating returns to training relative to stakeholder expectations. Unlike ROI which is simply an accounting valuation technique, ROE is an evaluation process that ideally begins before the training intervention is implemented, as it requires the training program to be tied to performance and business needs, as expressed by key stakeholders (the employer). The term ROE was created to highlight the importance of aligning training goals and content to the specific needs of the organization by ensuring that the training aims to address the causes of performance gaps and in turn contribute to business goals, which are ultimately what employers care about. Thus, the Measures of Success project is in large part an exercise in evaluating ROE.

The ROE approach uses surveys and interviews to moderate what data is available against perceptions and expectations of stakeholder groups - some of these data being moderated are highly subjective global judgements in and of themselves (e.g. worker engagement, perceived productivity, self-confidence). According to Gray (2006):

"Most of the available 'evidence' about the benefits arising from investment in LLN and other basic skills programs is at the micro level and comes from employer and participant responses to interviews and surveys."

Some studies suggest the ROE approach as it may offer a number of advantages, including the cost savings and reduced demands on the time of workers and their supervisors (Mavin *et al.* 2010). ROE requires stakeholders to evaluate the training outcomes in terms of what they expect to be able to do after undertaking the intervention. A related approach may be to look at 'impact analysis' as outlined in the work of Bramley and Kitson (1984) whereby the relevant stakeholders discuss and agree the objectives and the behaviours that they will require and thereby agree their own criteria.

Table A4.4 shows the types of questions which an ROE evaluation model may ask of each participant. The Measures of Success study, and others like it, have sought to identify and estimate costs and benefits of LLN training with the use of Likert-scale surveys and interviews conducted before and after the training has occurred. In the Canadian *Measures for Success* project, supervisors and/or managers are asked questions, both financial and non-financial in orientation, relating to identified areas of assumed impacts from LLN training including: productivity; costs and errors; product / services quality; customer service; sales; turnover; absenteeism; and health and safety.

Table A4.4 Return on Expectations: Examples of questions for each stakeholder group

Participant type	Information and possible questions
Participants	Measure their skills, knowledge, attitudes and application.
Participants' managers	<p>Obtain data or perceptions on what has changed and what gaps still exist.</p> <ul style="list-style-type: none"> • What were the original expectations of the organisational stakeholders for the learning or training? Have those expectations since changed? • What changes have occurred as a result of the learning processes? • Have the participants gotten better at their jobs? How? • Do they show a better or different attitude? • Do they work more efficiently? • To what extent have your goals/objectives been met as a result of this training? • What impact has this training had on changes in results/outcomes?
Participants' co-workers	<p>Similar to the managers, this group is used to obtain data or perceptions on employee performance, teamwork, attitude, etc.</p> <ul style="list-style-type: none"> • Have the participants gotten better at their jobs? How? • Do they show a better or different attitude? • Do they work more efficiently?
Participants' supervisees	<ul style="list-style-type: none"> • Does the participant show a better attitude? • Does the participant work more efficiently? • Is he or she a better manager or communicator?
Clients/Customers	<ul style="list-style-type: none"> • Are they satisfied with service, products or the availability of projects
Other	<ul style="list-style-type: none"> • Who keeps track of how many widgets are produced and how long it takes to produce them? • Were they produced on time? • Were they produced correctly?

Source: Measures of Success, 2012

The participant is asked to estimate the impact in dollars of the situation/application and then the participant is asked to provide an estimate (percentage) as to how confident they are in their answer. This confidence level is used to ensure a realistic value to be used in the ROI analysis. This "confidence level" is not to be confused with confidence intervals which measure the statistical reliability of an estimate.

There are many types of sensitivity analysis which supervisors may undertake in this regard:

- Testing the robustness of the results among key stakeholders
- Increasing understanding of the relationships between input and output variables among key stakeholders
- Identifying model inputs that cause significant uncertainty in the output to provide a focus of attention and resources
- Fixing or simplifying model inputs that have no effect on the output, or identifying and removing redundant parts of the model structure.

Operationally, the ROE process may involve the following 'moderations':

- Moderating existing quantitative data sourced from the **human resources, finance and/or administrative functions** to estimate the impact of the training program (e.g. A supervisor estimate that 30% of a cost saving in scrap/wastage can be attributed to a literacy program, thus providing a net benefit in financial terms)
- Moderating **supervisor observations** to estimate the impact of the training program (e.g. a supervisor estimates that 3 hours of their time and 1 hour of a workers' time per week was saved by a reduction in documentation errors and supervisor corrections. The hourly rate for the worker and their supervisor is multiplied by the number of hours saved providing a net benefit in financial terms).

Such data collections may adopt the sorts of approaches taken in 360° feedback performance management arrangements, whereby multiple sources of information on worker performance are sourced from self-ratings, supervisor ratings, subordinates, peers, customers and other relevant stakeholders. This method of data gathering – multi-rater feedback -- may be less vulnerable to bias and therefore more objective.

Misko (2001) outlines some of the key considerations with this approach:

'Two of the measures used are observations of performance by workplace supervisors, and participants' performance on specific tests. Feedback from workplace supervisors, and participant performance on specific tests, has the potential to provide the most valuable information of the effectiveness of training. However, this feedback is especially dependent on supervisors being able to devote sufficient time to observing and recording performance of individuals in reliable and valid ways, and the availability of specific tests. Even if supervisors were available to be involved in the assessment of changes in behaviour, the cost of their involvement, in terms of cost and of time away from normal routines, may also be expensive.'

The approach used in *Measures for Success* was that, for each question on a specific application, the respondent was asked to assign a financial figure (either increase in revenue or decrease in cost) for the application. The respondent is also asked for a percentage reflecting their confidence in the accuracy of the financial figure. This 'confidence factor' is used: to reduce bias by multiplying the estimate of benefits (in dollars) by the confidence percentage for each question.

The Measures of Success project summarises the necessity for adopting a more qualitative research method this way:

'It is important to note that most research on the returns to workplace literacy programs use a qualitative methodology that draws on employers' perceptions. This is in part because few companies collect quantitative data on the benefits arising from the training they deliver to employees, and also because estimating ROI tends to be complex. Also, due the difficulty converting intangible benefits to monetary values, they are often excluded from ROI calculations, likely leading to underestimation.'

The Measures of Success study found:

'ROE can be an especially useful technique when businesses fail to track the data needed at the individual level, making it nearly impossible to isolate the specific effects of a training program. For training professionals looking to make educated decisions about more subjective learning programs, the evaluation of ROE may be a worthwhile investment (Goldwasser, 2001). However, despite the value of an ROE evaluation, some training professionals will not give up conducting true ROI studies.'

Perhaps deployed out of necessity, ROE results are reliant upon highly-subjective qualitative data, supported by "confidence" estimations from supervisors and other stakeholders. Methodologically, such an approach does not satisfy the objectives of Level 5 in Phillips' ROI evaluation model. It is important not to confuse or conflate an ROE evaluative model with an ROI evaluative model as they serve different purposes and produce markedly different outputs. Although ROE has been borne, by necessity, out of earlier ROI research and evaluation work, the ROE model is more akin to routine surveys of workplace perceptions, impressions and attitudes than to objective and reproducible impact evaluations.

Very few studies have gathered empirical evidence on the impact of providing workplace basic skills training. Instead, most must be pragmatic and rely on qualitative or subjective estimates, which are

based on global judgements. In this sense, these evaluations must build a bridge from LLN training to changes in business outcomes (e.g. productivity, wastage, turnover) through proxy measures. Gray (2006) summarises the issues this way:

'Evaluations of LLN initiatives have to contend with issues of perspective, measurement and attribution. The relationship between training and outcomes is complex, and it is difficult to control adequately for extraneous factors, or to identify which component of the intervention—or whether the fact that there was an intervention at all—had most influence on the outcome. As with literacy programs themselves, clarity about the goals of any evaluation is essential, along with reality about what outcomes can be expected in the short term.'

A4.3.5. Converting changes in “soft skills” for use in ROI calculations

Hartley and Horne (forthcoming) state that it is not always possible to value costs and benefits in monetary terms in the education and training field, as many of the outcomes do not have a direct monetary value attached to them. Both ROIs and benefit-cost analyses require monetisation (i.e., valuation) of both the benefits and costs of an investment. For a financial investment, this requirement is not onerous because it is precisely asset value that motivates the investment. However, for investments in programs such as workforce development, many of the benefits are intangible and therefore difficult to value (Hollenback, 2012).

Less tangible firm outcomes may include such things as improved workplace morale, social inclusion, improved manager-worker relations/trust, and a culture of learning. These outcomes do not directly affect a firm's income or equity, but may have an indirect effect. Morale as an outcome attractive to employers, and perceived as conducive to the profitability of business, also surfaces in a recent report on the impact of workplace LES programs in small and medium-sized enterprises (SMEs) in Nova Scotia (Praxis 2008). When asked to identify the “direct benefits to the company” of the workplace LES training programs they had offered, employers “focused on improvements in self-confidence, self-esteem, morale, job satisfaction and communications ‘soft skills’”. In their view, the improved attitude and behaviour of their employees, “non-technical and somewhat intangible changes”, translated into “significant changes in the workplace as a social environment...that provided the basis for downstream outcomes”, i.e. outcomes become evident much later.

There are many reasons - purposeful, pragmatic or otherwise - for the rise of the *Return on Expectations* research method as a preferred approach to evaluating workplace literacy programs. It has been argued that qualitative or “soft” evaluation can be more useful in measuring the “intangibles” or changed attitudes that are seen by many as being generally “at least as important as harder financial impacts” (Pye and Hattam 2008) and even more important in certain work settings. In other words, not all outcomes can be easily quantified or converted to monetary value. In this view, a qualitative approach to evaluation can capture “the complexities of real-world programs and participants’ experiences” that a quantitative method might miss or “oversimplify” — unless, of course, some method was devised of quantifying these complexities (Salomon, 2009).

From this perspective qualitative evaluation is more suited to capturing changes in soft skills that a quantitative method might miss or oversimplify — unless some valid method existed to quantify these relatively elusive changes. In this connection experts in New Zealand have called for the development of “a common measure of changes in confidence and literacy behaviours that providers could use alongside other outcome measures ... [that] would provide consistent and quantifiable results in an area that many teachers, employers and learners think are as important as LLN skills gain” (Benseman and Sutton 2007).

A4.4. Approaches to data collection and analysis

Much of the criticism levelled at the quality and availability of research and evaluation in this area can be traced to the quality and availability of enterprise-level data which meets the requirements of conducting a credible return on investment resulting from a particular training event. Gray (2006) summarises these issues as follows:

*[There is a] ‘dearth of reliable evaluations of LLN initiatives and the difficulty of undertaking such evaluations. The difficulties are related to issues of **perspective, measurement and attribution.**’*

Selecting the most appropriate evaluation method will depend on the following criteria: feasibility, accuracy, credibility, costs and time—including that of participants, managers and others (Gray, 2006). When considering data collection methods, there are a number of possibilities for measuring training impact, e.g., performance tracking, HR metrics, finance metrics, OH&S data, surveys, observation, document analysis, one-on-one interviews, focus groups etc. To conduct a Phillips/Kirkpatrick Level 4-5 evaluation of a particular training program, a variety of data collection methods are needed to encompass both tangible and intangible costs and benefits (Barker, 2001)

The most significant issues for measuring a ROTI are: the conversion of soft data to monetary values; adjusting for the time horizon of benefits; and attribution of change to the particular training in question (causation). Barker (2001) identifies several other ways to address some of these issues, particularly those relating to the conversion of intangible observations and perceptions into tangible results. Some are appropriate for a specific type of data or data category; others are appropriate for any type of data:

- Focus on a single unit; determine a value for each unit; calculate a change in performance; obtain an annual amount; determine the annual value
- Convert output to contribution.
- Calculate the cost of quality
- Convert employees' time
- Use historic costs
- Use internal and external experts
- Use data from external studies
- Use participants' estimates
- Use supervisors' estimates
- Use senior managers' estimates
- Use HR's estimates



In the first instance, Gray (2006) argues that, to evaluate effectively, companies need to be clear about why they are undertaking training and understand: whether the skill development has an operational focus, is designed to address an organisational threat such as a safety issue, or is being made to strategically position the organisation for the longer term. This, it is posited, will influence whether the employer wants to:

- measure the effect of skill development to show that 'training pays'
- show how (that is, in what ways) skill development pays
- market the organisation's training function
- improve the quality of skill development, or help to decide priorities

Further complicating the data issues is that there is no set of agreed procedures to conduct or demonstrate a return on investment to training (Barker, 2001; Mitchell, 1994). Whilst Philips (1996) is clear about the advantages of calculating ROI he urges caution in some areas: *"when reporting training results, credibility is always an issue. It is the crucial that the data be accurate and the conversion believable"*. This is a key issue in that each layer of assumption, estimation and subjective judgement diminishes the scope for replicate and generalise in other contexts. That is, the variation in method and its application may explain the findings as much as the input data. Benseman (2014) argues that it may be due to the methodologically challenging nature of the work that *"the results probably point to variations in programs as much as research methodology."*

Doucouliagos and Sgro (2000) outlines why estimation and pragmatism drive much of the studies in this field:

'The measures of the impact of training are by necessity only estimates. As noted by many researchers, it is rarely the case that conclusive proof will be found about any organisational intervention. Rather, analysts compile credible evidence about the impact of training. This evidence must satisfy a number of requirements. The data used must be of sufficient quality. The techniques applied must be scientifically valid, and the analysis should address the possibility that training may not be the only factor behind changes in performance.'

Hartley and Horne (2011) summarise the issue of researcher perspective:

'The impacts (and therefore the costs and benefits) of multiple literacies are complex, cumulative, and interactive. Researchers from different backgrounds approach the issue from different perspectives. Economists typically have an ideal standard of measuring everything in monetary terms. This allows them to undertake cost benefit analysis, i.e. to compare the balance of costs and benefits over time, and to calculate a rate of return on an investment in a particular intervention, program or policy....The social return has a wider base than the economic return and includes monetary valuation of the costs and benefits to individuals, taxpayers and society at large.'

Hollenback (2012) provide a scenario from an enterprise perspective:

'While the investment theory of trying to maximize ROI is conceptually easy to grasp, the actual calculations may require many assumptions and "guesstimates" about costs or benefits. This implies two things. First, since program administrators try to have as high an ROI as possible, if a "guesstimate" needs to be used in an ROI calculation, and guesstimate no. 1 yields a higher ROI than guesstimate no. 2, program administrators have an incentive to justify and use no. 1. That is to say, in many instances, ROI calculations can be strategically gamed. This leads to the second implication: It will be very difficult to compare the ROIs from different programs if quite different assumptions are used in their calculations.'

The number of stakeholders and research participants contributing time and input to an evaluation necessitates a range of conflicting perspectives. These stakeholders carry with them different reasons to participate and expectations from the research (Misko, 2001):

'Individuals want to know whether the time and money they have spent in pursuing a certain qualification or program of skills will deliver them higher income in the short or long term, or better opportunities for advancement. Enterprises want to know whether training has led to better workplace performance in terms of increased productivity, adaptation to technology, international or domestic competitiveness, and occupational health and safety. In addition, enterprises want to know whether their training has helped them to comply with any legislative requirements. Governments want to know whether their funding of training has helped them meet national qualification and skill targets and improved their economic competitiveness in global markets.'

Regardless, in deploying one or more of these methods it's important to consider the following criteria: feasibility, accuracy, credibility, costs, and time including that of participants, managers, and others.

Box 4 Barker (2001) general observations on "wisdom about cost/benefit ROTI"

1. Some courses should/must be offered without expectation of ROTI, e.g., orientation of new employees, retirement planning.
2. Training programs for employees with well-defined and quantified expectations (standards, quotas, goals) are the most appropriate ones for measuring ROTI because measurement systems already exist.
3. For those without well-defined and quantified expectations, the responsibility rests on each participant to generate pre-training and post-training data and to assign dollar values to these.
4. Most ROTI analyses are for comparative studies: comparison between different types of training (on-the-job vs. off-the-job; individualized vs. group, centralized vs. regional); comparison between different types of investment (new hires vs. retraining)
5. A cost-benefit analysis is inappropriate when training is conducted to accompany the installation of new equipment because there are no prior performance measures to compare results, and the impact of installing the new equipment makes it impossible to separate performance attributable to training from performance attributable to the equipment.
6. Costs should be calculated over the shelf-life of a training program; however, it is difficult to know how many times it will be run before no longer being needed.
7. The benefits of training should extend well beyond the final offering. The payback period can typically be projected one to five years.
8. Although training costs can be calculated by HR managers, the benefits should be identified, quantified and converted to dollar values by management because they are in the best position to observe changes in performance attributable to training, and their data is more

objective.

9. Generally speaking, training works better in the workplace than in the classroom; in partnership rather than self-directed; linked to a specific application such as new technology; in a state of employment; and for those already possessing sound basic education and skills

Source: Barker, 2001

A4.4.1. Research methods (quantitative, qualitative or mixed methods)

Traditionally, LLN evaluation practice has been dominated by qualitative approaches to measuring outcomes, with quantitative data gathered largely on program outputs, for example, the number of learners in a program, number of learners completing a program and so on (Salomon 2009). This emphasis has elicited some criticism over the past twenty years (Praxis 2008; Pye and Hattam, 2008; Mikulecky and Lloyd, 1996).

There is an ongoing debate over appropriate methods when evaluating workplace literacy training, and workplace training more generally. Table 3.5 summarises the types of quantitative and qualitative measures which could be used in the evaluation of workplace literacy programs. Some experts believe that evaluation methods should be more rigorous i.e. formal, quantitative, scientifically-informed, and focus more on employer outcomes or impact. Others argue that a qualitative approach is well-suited to capturing outcomes that quantitative methods can miss or capture imperfectly, in particular improvements in soft skills, or employee attitudes and behaviours in relation to their work, colleagues and employer.

Table A4.5 Quantitative and qualitative methods applied to workplace literacy training

Quantitative methods	Qualitative methods
<ul style="list-style-type: none"> • In-house records and statistics • Pre- and post- training assessments or tests (standardised or other) • Pre- and post- productivity analyses • Control charts, checklists, punch cards • Reports by supervisors and management • Benchmarking • ROI analysis • Cost-efficiency analysis • Other measures, instruments and tools relating to learner outcomes 	<ul style="list-style-type: none"> • Interviews/focus groups/surveys involving learners/instructors, workplace supervisors, union representatives, employer • Informal assessments by instructors • Journals/portfolios/narratives produced by learners • Meeting minutes • Observation of classroom activities, workplace behavior and performance

Source: Salomon (2009), adapted from a summary table in CFL (2009)

Mitchell (1994) advises against the use of cost-benefit analysis in isolation from supporting data:

An HRD approach to calculating ROI must acknowledge that a cost-benefit model alone cannot measure and assess the value of training. Many phenomena connected with training and organisations can leave the highest quality training disconnected from the planned outcomes. A cost-benefit study improperly applied might show success when there is none or show failure when successful outcomes are still developing.

Salomon (2009) providing a summary of the issues:

“...the reality is that quantitative evaluation has not been the dominant practice, as various important studies have noted since the late 1990s (Gray 2006; Pye and Hattam, 2008; Plett 2007). These have criticized the “informal”, “unsystematic”, “unscientific”, “anecdotal”, “qualitative” and “subjective” nature of many if not most of the evaluations used in workplace literacy and essential skills training programs and urged a more “formal”, “empirical”, “scientific”, “rigorous”, “robust”, “quantitative” and “objective” approach.”

The complexity of work required to derive a net benefit of workplace literacy training is a non-trivial barrier to moving this field of research forward. The “true” effect of a program can only be measured if the method used to quantify change distinguishes the program effects from the effect of other factors, determines what the hypothetical outcomes would be for the same people if they had not participated in the program, accounts for short-, medium-, and long-term outcomes, and avoids selectivity and heterogeneity biases while ensuring validity (Descy and Tessaring, 2005 in Salomon, 2009).

Recent literature and studies support the use of a combined quantitative and qualitative evaluation of workplace literacy and essential skills training (Gray 2006; Salomon, 2009; Descy and Tessaring 2005). At the end of the day, “pragmatism” is called for — an acceptance of the uses and limitations of each approach and an understanding of how one can usefully complement the other, taking into account the

work setting, the goals of the training program and the resources available to carry out an evaluation (Descy and Tessaring 2005).

Box 5 Gray's (2006) summary of international literature on LLN evaluations

International evidence is also very limited but some studies have suggested that employer-provided literacy and numeracy courses may raise productivity, improve the use of new technology in the workplace, contribute to enhanced customer satisfaction, save time, and reduce costs (see Bloom *et al.* 1997; Pearson, 1996; Hollenbeck, 1996; Krueger and Rouse, 1998). However, these results are based on a handful of research studies and must therefore be treated as extremely tentative, and in need of corroboration.

Those employers who have sponsored basic skills training are generally positive about the experience. Although not all those interviewed by researchers perceive any impact on measured outcomes such as productivity, there is no evidence that employers who have sponsored basic skills training have found it to be either burdensome or an unnecessary expense (Krueger and Rouse, 1998).

Far more evidence is available on training in general than on basic skills training, and a number of well-constructed studies show a positive impact on business performance. There is a sizeable body of literature attesting to the improvements in productivity stemming from workforce training, while some studies have found that training was associated with higher levels of innovation and/or better financial performance (see, for example, Keep *et al.* 2002; Barrett and Hovels, 1998; Green, 1997). Studies of employees have consistently found that training led to improvements in earnings (see, for example, Blundell *et al.* 1999; Greenhalgh, 2002; Blundell *et al.* 1996; Arulampalam *et al.* 1997).

Concerns are sometimes raised about the poaching of trained workers, but the evidence points strongly in the opposite direction. Workplace training is associated with longer job tenure, a reduced likelihood of individuals quitting the firm, and with lower labour turnover for the company as a whole (Dearden *et al.* 1997; Green 1997). Researchers have also found a statistical relationship between provision of training and higher levels of worker commitment to the organisation as measured by expressed loyalty, pride in the organisation and agreement with its values. (See, for example, Dex and Smith, 2001.)

Studies on the effects of basic skills training in the workplace are scarce. There is a real and urgent need for more research on this topic. Both large-scale quantitative analyses (assessing the benefits and costs of literacy/numeracy training on representative datasets) and case studies (investigating in depth the effects of basic skills training at particular workplaces) would be valuable. Because firms do not collect it, there is almost no data on rates of return to training of any kind or on training costs.

Although this review includes the word “returns” in the title, it is apparent from the above research that rates of return in the strict economic/financial sense of the word have rarely been estimated. What has been done is to relate training inputs, to the extent that the data allows such inputs to be measured, to training outputs, again in a manner that is dependent on the data available. We tend not to find a calculation which relates the initial investment in training to the flow of benefits over time, thereby producing an estimate of a rate of return in a manner which is done for investment in capital assets. Any such calculation would be subject to considerable uncertainty. This is partly because of the data limitations but also because there is unlikely to be good information on the speed with which the acquired skills depreciate or the extent to which employees change jobs.

Source: Gray, 2006

A4.4.2. Identifying training inputs and costs

The concept of ‘costs’ as used in ROI studies is one that is drawn from economics, namely, *opportunity cost*. When a resource is used for one purpose, enterprises lose the opportunity to use that resource in some alternative use. In competitive markets, the opportunity cost of an input can be determined from its price. In other cases estimates need to be made, and the assumptions concerned need to be clearly documented.

Mikulecky & Lloyd (1993) summarise one of the key costing issues – ‘time’.

Time is at a premium in workplace literacy programs. Many programs are only able to provide brief instruction, and still others lose money for each hour of learner time since learners are not producing a profit while in class.

The most common approach to costing education and training programs is through what is termed the *ingredients approach* (Levin & McEwan, 2001). This involves systematically identifying the resources or inputs involved in the program and costing each of them.

When looking specifically at workplace training programs, Barker (2001) identifies training costs and benefits of three kinds:

- one-time (e.g., needs analysis and design);
- cost per offering (e.g., facilities rental, consulting fees); and
- cost per participant (e.g., meals, notebooks).

The resources used in training programs can generally be classified into five categories:

- personnel directly or indirectly involved in training – e.g. trainers, HR, administrative and management staff
- facilities and equipment e.g. training rooms and computers, on site or hired
- instructional materials e.g. electronic or print-based learning materials
- course development or purchase;
- other inputs (e.g. transport, fees for assessments)
- trainee time, lost productivity or temporary replacement costs

Direct and indirect training costs are listed in Table A4.6. Such ‘ingredients’ should be as thorough as possible to help decision makers consider the possibility of replicability of training programs, and to enable assessments of the implications of changing the composition of the inputs.

Misko (1996) revealed a dearth of studies which specifically address the costs and benefits of entry-level, work-based training and training for existing workers. The author claims that *“this relative paucity of data (where information is either unavailable or, if it does exist, is inaccessible) would seem to imply that evidence on costs and benefits is largely anecdotal or is related to particular programs or trainee groups”*.

Table A4.6 Potential costs of investing in workplace training

Direct training costs	<p>Typical training costs for an employer might include:</p> <ul style="list-style-type: none"> • cost of needs analysis/surveys • course design, development, or purchase • salary of instructor, consultant, and/or staff • offsite travel, lodging, and meals • facilities rented or allocated • equipment and hardware • instructional and testing materials • course/training evaluation <p>Typical training costs for a worker might include:</p> <ul style="list-style-type: none"> • tuition • childcare • books and materials • equipment, e.g., computer • travel / parking • special fees, e.g., library • loss of income
Indirect Training Costs	<ul style="list-style-type: none"> • loss of productivity while trainees are attending training; • other employee time related to training; • missed opportunity cost (e.g., method of calculating in the context of sales training); • induction costs; • cost of replacing the employee while s/he is attending the course; • maintenance costs, e.g., mail, transport, refreshments, record keeping, stationery, accommodation; • higher wastage rates until the trainee is fully proficient; • recruitment of training staff or selection of training package; and • the risk that a more highly trained employee may then obtain another job.



Source: Barker, 2001

The cost 'ingredients' may be further categorised into 'fixed costs' and 'variable costs'. Fixed costs are those that remain the same no matter how many individuals participate in the training, such as marketing/information distribution about the training and the trainer's salary.

Variable costs are those that change based on the number of participants. Examples include training manuals, meals (if provided), and the salary costs associated with the employees' time away from their jobs to attend training sessions.

Identifying the ingredients in a training program generally involves using multiple sources of information - program documents, publications, interviews, observations and company records to identify all of the resources used to implement each training program.

When all of the ingredients are accounted for, their cost values are determined. There are a variety of ways to estimate these costs. In the case where ingredients are purchased in competitive marketplaces, the costs are readily obtainable through the prices paid. For example, the costs of course materials would be given by the prices paid and the extent to which those inputs are used in one or more programs. One of the major input costs is likely to be trainers' time. This would be ascertained by apportioning their salary and on-costs to the number of hours involved in planning, delivering and assessing the training program.

Trainees' time is another key input to be costed. When an employee undertakes training program in work time, the employer does not only have to pay that person's payroll costs, they are also losing the opportunity for that person to add value to the organisation. If an employee can be easily replaced while they are undergoing training, then there is no lost opportunity – the cost is simply the employee's payroll costs. If it is not practical to obtain a suitable replacement, there also needs to be an estimate of the opportunity cost of lost production over and above the employee's payroll cost. This can be achieved through an estimate of the average value of production per employee of the type receiving training.

In general, the technique for measuring costs is to ascertain their annual value. Because facilities and equipment have a life that is greater than one year, the annual value of those inputs is derived through determining annual depreciation and interest costs.

These total ingredients' costs are summed to obtain total annual costs of the training program; they are then usually divided by the number of trainees or trainee hours to get a measure of average cost that can be associated with measuring the benefits of the program. The relationship between the number of trainees and average cost per trainee can be used to identify scale economies in training delivery. It is also important to collect information about the program's delivery method so that its implications for costs and outcomes can be assessed. A helpful refinement is to also obtain data on course completion rates so that the cost per "graduate" can be calculated as well as the cost per initial enrollee.

A4.4.3. Identifying benefits

Whereas the costs of training programs can usually be quite easily calculated, this is not the case with the benefits, which may be only realised over-time, and in conjunction with other activities, or in ways that are just plainly difficult to quantify. In general terms the benefits of training are more problematic to conceptualise and measure than the ingredient costs. In particular, it can be difficult to attribute a monetary value to training outcomes many of which are intangible and hard to relate directly to enterprise performance. The practical challenges of collecting and analysing such data suggest that the benefits documented in evaluation studies almost certainly *underestimate* the full value of training and hence the ROI.

Misko *et al.* (1996) found that while many companies did not evaluate training formally, most judged the effectiveness of their training through improvements in work performance and feedback from internal and external clients. Benefits identified most frequently by enterprises surveyed were: improvements in productivity; employer–employee relationships; safety; technical competence and quality; and cost efficiency and effectiveness. According to Woods *et al.* (2006) some of the principal benefits observed from raising the basic skills levels of the workforce include:

- improved communication skills and greater confidence
- better earning capacity and employability
- increased ability to handle training on the job
- better team performance and improved labour-management relations
- increased productivity and quality
- better health and safety record.

ROI in training also includes a range of extrinsic and intrinsic factors that may be enjoyed by individuals, enterprises, governments, and societies, either independently or in combination (Misko, 2001). Much of what is written on workplace outcomes and ESL instruction is also anecdotal and based on interviews with employers, educators and labour representatives (Burt 2004). The research studies that do exist are generally case studies or qualitative research (Gray, 2006). The literature which does exist supports the view that increasing LLN skills can bring a wide variety of social and economic benefits to employers and employees. However, the links between basic skills training and benefits are often unclear and difficult to establish (Gray, 2006). Billett (1994) asks a set of pertinent questions which capture the key challenges in identifying the net benefits of workplace training:

'How do you calculate the value of things which no longer happen, ego reduction in accidents, returned jobs, improvements in quality...even comparisons with what happened prior to training programs may under-estimate the value of such programs....To what degree is it possible to ascribe improvements to training alone and not other factors such as improved communications, greater discretion with decision-making, etc?'

According to Misko (2001):

'Individuals stand to gain a variety of external and internal benefits from being involved in training programs. This is true for enterprises, training providers, governments and societies. In all cases, these benefits need to be considered in terms of the costs that were incurred to produce them whether the funds or effort involved has been worthwhile.'

For employees, basic skills training leads to promotions and improved attendance (Askov, 2000), job retention (Campbell, 2003), and enhanced job performance (Bates and Holton, 2004). Benefits to employers include reduced error rates, better safety records, and increased employee retention and morale. The major review of training benefits by Aguinis & Kraiger (2009) concluded that:

'Many studies have gathered support for the benefits of training for organizations as a whole. These benefits include improved organizational performance (e.g., profitability, effectiveness, productivity, operating revenue per employee) as well as other outcomes that relate directly (e.g., reduced costs, improved quality and quantity) or indirectly (e.g., employee turnover, organization's reputation, social capital) to performance.'

Offering a different form of categorisation, Barker (2001) identifies the following types of benefits:

- time savings (less time needed to reach proficiency, less supervision needed, etc.)
- better quantity (faster work rate, less down time, not having to wait for help)
- better quality (fewer rejects, lost sales, reduced accidents, lower legal costs)
- personnel data (less absenteeism, fewer medical claims, reduced grievances)

Barker (2001) also makes an important point that benefits may themselves be measured in different points and in different ways:

- Where there is a one-time block benefit to the enterprise (i.e. reduced scrap in the pile);
- Where there is an occurrence that accrues a benefit with every offering (i.e. contextualised training to improve a particular type of documentation); or
- Where the training has a multiplier effect for every worker trained (e.g. any LLN training which assists workers' with improving their job performance).

Hollenbeck (1996) identifies a set of hypothesised outcomes of training:

- (higher) productivity (to the degree that productivity gains are not immediately absorbed by higher wages);
- (higher) wages;
- non-wage compensations such as pensions;
- (less) worker turnover;
- safer workplaces;
- (higher) taxes;
- (improved) self-esteem and payments to trainers

a) Benefits to employers

Benseman and Sutton (2007) describe the connection between LLN training and benefits to employers this way:

'Many employers are unaware of the links between low literacy and productivity or workplace performance. Companies may be aware of, and talk about, health and safety concerns, accidents, poor workplace documentation and error rates, but they do not necessarily make the connection to 'literacy' as a key factor underpinning these issues.'

The shift towards capturing employer outcomes is part of an effort to generate greater interest in and commitment to workplace literacy training among employers (Salomon 2009). However, research at the level of the firm on employer investment in training of employees remains limited. Research on the impact of training on firm performance is particularly scarce (Ananiadou, Jenkins, and Wolf, 2003; Black and Lynch, 1997), although Barrett and O'Connell (2001) find positive effects of employer-sponsored training on firm-level productivity. Such studies, however, are generally confined to aggregate measures of training, and do not specifically consider either the determinants or the impact of training in basic skills, such as literacy and numeracy.

The possible outcomes of basic skills training in which employers have a direct interest are higher productivity, lower turnover (indicating greater commitment to the firm) and an improved safety record (Ananiadou, Jenkins and Wolf, 2003; Salomon, 2009). Benseman (2014) adds improved use of new technology, enhanced customer satisfaction, time savings, and cost reductions (e.g. recruitment and retention)." Shepherd (n.d.) identifies four main categories of employer benefits, all of which seem to be applicable to the learning goals of LLN programs:

1. **Labour savings** occur where, as a result of the training, less effort is needed to achieve current levels of output. Examples of labour savings include: reduced duplication of effort; less time spent correcting mistakes; faster access to information.

2. **Productivity increases** occur where, as a result of training, additional output can be achieved with the same level of inputs. Examples of productivity increases include: improved methodologies reducing the effort required; higher levels of skill leading to faster work; and higher levels of motivation leading to increased effort.
3. **Other cost savings.** Training can result in other cost savings in a variety of ways, not just through savings in labour. Examples include: fewer machine breakdowns, resulting in lower maintenance costs; and lower staff turnover, reflected in lower recruitment and training costs.
4. **Other income generation.** By increasing workers' skills and knowledge, training can lead to the increased income from existing activities (e.g. through increased customer satisfaction and 'repeat' business) and development of new sources of income.

Changes in workplace practices and performance are presumed to lead to both tangible and less tangible financial outcomes in the firm. Among the tangible financial outcomes that may arise (i.e. those that directly affect a firm's profits and equity) as a result of training are increased productivity, increased sales, cost control, improved product quality, improved customer service, worker retention, reduced absenteeism, and improved health and safety. Assuming that training is aligned to business needs and targets skills gaps causing the firm's performance gaps, firms should experience positive market outcomes associated with the business needs identified in the organizational needs analysis (other factors held constant).

There is evidence in the literature that workplace training may lead to improved tangible financial outcomes for firms. For instance, Hollenbeck and Timmeney (2009) found that employers and workers reported frequent productivity gains. Kuji-Shikatani and Zori (2007) also identify the following outcomes for firms: reduced absenteeism; improved productivity; improved health and safety; and easier recruitment and retaining of workers, with some companies having turnover rates much lower than the industry norms.

Box 6 Horrigan's pre- and post-training model (linking training to staff turnover)

Horrigan (1979) proposes an approach which compares training participants and training non-participants. One could compare staff turnover data (voluntary and involuntary terminations) for individuals who have been involved in training programs with data of turnover for individuals who have not been involved in training. This approach is especially dependent on comprehensive record keeping with respect to staff turnover and training participation.

The first step is to decide on the pre- and post-training measures to be used. In this case, we are going to compare training participants with training non-participants in terms of:

- employee turnover
- training dollars expended
- training dollars retained

The next step is to gather information on the numbers of employees who have participated in training and the numbers of employees who have left the company. Let's imagine there are 600 employees in the company under investigation and that half of these have participated in five training sessions each at a cost of \$100 per participant. Let's also imagine that after the training has been conducted, 30 of the employees who have participated in training have left the company, and 150 of those who have not participated in training have also left the company. As a percentage of turnover this means that a tenth of training participants have left the company, and one-half of the training non-participants have left the company. This information can be taken to indicate that training does have an effect on employee turnover because the nonparticipant turnover is five times the turnover of participants.

Although this provides a simple method for making decisions about whether training participants are more likely to leave the company than non-training participants, the reasons such employees choose to leave the company may not be due to participation in training. There may be other factors that may be used to explain the differences. Horrigan also examined information of employee turnover in terms of the costs of training for training

participants retained with the company versus training participants who had left the company. He found that the overwhelming majority (90%) of trained employees was retained with the company, while a tenth of training participants left the company.

Source: Horrigan, TJ 1979, 'The effects of training on turnover: A cost justification model', *Training and Development Journal*, July 3–7. in Misko, 2001

b) Benefits to workplace practices

Studies suggest that the inter-relationships between training and other practices of the firm may be important in assessing the likely effects of training in the workplace (Ananadiou, Jenkins and Wolf, 2003). For example, several studies have found that training may exert its influence on company performance in association with several other human resource practices of the firm (Black and Lynch, 1996; Ichniowski, 1997). In such studies, training forms part of a bundle of HR practices (Guest 2000), which may include team working, family-friendly policies, performance appraisals, profit-related pay etc. and it is the bundle as a whole which influences performance (Ananadiou, Jenkins and Wolf, 2003).

In an exhaustive review of literature of basic skills training in the workplace, Gray (2006) finds that:

The sources also suggest a link between participation in basic skills programs and encouraging innovation and the use of technology. Improved communication and decision-making are likely to contribute to a more productive workplace culture and enhance collaboration in the workplace.

According to Moy (2000) enterprise decision-makers appear more interested in evidence of the contribution of training to organisational change (such as enterprise repositioning as a high road, or high performance competitor) and business strategy, than in efforts to isolate direct, quantitative links with profits and productivity. Kirkpatrick & Kirkpatrick (2005) claim that changes in context such as leadership, teamwork, attitude and a happier work atmosphere are often desired to achieve things such as reduced turnover, greater productivity and better teamwork.

Studies suggest that investment in basic skills programs leads to lower staff turnover (Gray, 2006), making a contribution to a more stable workforce and positive organisation culture. Misko (1996) summarises the benefits of LLN training to workplace practices this way:

"While it cannot be argued on the basis of such seemingly far reaching benefits as those cited above that literacy training is a panacea for all ills, information on the outcomes of workplace LLN programs does suggest that a language and literacy training strategy can lead to concrete improvements in an enterprise for both employers and employees".

The impact of LLN training on workplace practices can manifest itself in many ways. Gaining the 'buy-in' of supervisors, team leaders and managers is essential to ensure these change are managed in way that meets the training needs of the worker and the business needs of the employer. Employees seeking to advance their employment status through improving their skills typically require the support of their direct supervisors. As their confidence increases, staff are also likely to speak up more in meetings, question existing procedures and want a greater say in decision-making (Gray, 2006).

Benseman (2014) outlines the benefits to workplace practices which workplace literacy can provide a platform for: further skill acquisition, unlocking of talent, and the introduction of innovation, new ideas, and knowledge. While improved LLN skills can have immediate application value in workplaces, they also unlock other learning opportunities, such as assisting with the LLN demands of gaining qualifications and other forms of workplace training. Reducing the number of people with poor LLN skills helps to optimize labour market participation, increases worker retention, and provides an investment in higher levels of skill for a significant number of workers.

According to Gray (2006), participants find it easier to work independently as well as in teams and are more confident using technology. They also adapt to change more readily and are

more willing to take on leadership roles. LLN skill development can bring benefits that extend beyond a particular workplace or industry.

Morale as an attractive outcome to employers, and perceived as conducive to the profitability of business (Salomon 2009). These improved attitudes and behaviours of their employees or “non-technical and somewhat intangible changes”, translated into “significant changes in the workplace as a social environment...that provided the basis for downstream outcomes”, i.e. outcomes evident much later. These outcomes related to:

- communication and interaction in the workplace
- the ability to adapt to ongoing changes in workplace technology and processes
- the management of workflow and technical problems
- management understanding of employee capacities, talents and limitations
- the trainability and opportunities to promote from within the company (Salomon, 2009).

Salomon (2009) found that although these employers were not able to quantify the positive changes, they expressed confidence that [LES] training was generating significant gains in productivity and bottom line business outcomes “down the road”.

c) **Benefits to employees**

In perhaps the most comprehensive account of the benefits of basic skills training to employees, Ananiadou, Jenkins & Wolf (2004) find that:

“On the whole, the evidence suggests that better numeracy and literacy skills have a strong positive effect on individuals' earnings and employment stability, even when other relevant factors, such as qualifications levels, are taken into account. There is also good evidence to suggest that general training provided at the workplace has a positive impact on individuals' wages, particularly when this training is employer provided rather than off the job. However, the literature also suggests that improvement of basic skills levels in adults has very small or even no positive effects on wages and employment probability.”

There are recurring questions asked in the literature as to which areas of work might employers require LLN training. Such day-to-day tasks might include:

- Understanding workplace rules and procedures
- Filling out forms, contracts or time sheets
- Writing reports
- Following instructions
- Asking questions
- Reading notices, instructions, timetables or job sheets
- Taking orders and handling cash
- Giving instructions to customers, other staff or suppliers
- Counting and recording stock
- Taking part in team meetings
- Working on a computer
- Finding solutions to workplace problems
- Interpreting weights and measurements
- Calibrating equipment and machinery



Staff who don't have adequate literacy skills may:

- Not understand written or verbal instructions
- Be slower at doing their job
- Make more mistakes in their work
- Not be able to communicate effectively
- Be afraid of taking on new tasks
- Lack the confidence and self-esteem to create great customer relationships.

Benseman (2014) points to the growing body of research evidence (especially from longitudinal studies) that shows benefits for individuals who improve their LLN skills (Bynner & Parson, 2006), although there has also been some opposition regarding whether workplace programs

do actually improve LLN skills (Sheehan-Holt & Smith, 2001; Wolf & Evans, 2009). Several studies in the adult learning literature generally and the workplace LES training literature specifically report that adult learning leads to improved self-esteem and self-confidence.

From the perspective of the individual learner, benefits might be increases in earnings while costs might include the cost of training materials and foregone wages (e.g. if workers are not compensated for training during work hours). The research base in relation to the returns from training is not as developed as it is for returns from investment in education more broadly. In a review of the evidence on returns to education and training by Blundell *et al.* (1999), the authors find that the private returns from employer-provided training (variously measured) to individual workers' real earnings have consistently been found to be significant. Individuals undertaking employer-provided training earn, on average, just above 5 per cent higher real earnings than individuals who have not undertaken such training, with some studies showing higher rates. However, it is often not clear whether the observed return is net of any individual costs related to the training, since the available data do not contain information on the actual division of costs between employer and employees (Blundell *et al.* 1999).

Salomon (2009) states that learners participating in workplace LES training programs have consistently shown improvement in various areas that have impact on their work performance, including:

- communication skills (oral and written)
- numeracy
- understanding of machines and new technology
- understanding of work practices
- morale and self-confidence
- work satisfaction
- job task performance
- participation and initiative
- team-work
- job/career advancement potential
- interest in learning

In the delivery of LLN training, almost every study reports increased self-confidence, self-esteem and morale, and confidence in the work and decisions made by workers, as benefits from participating in a basic skills program (Gray, 2006). The resulting flow-on benefits to companies include the ability of employees to work more independently, increased participation in all workplace activities and a willingness to take on new roles as mentors and coaches. People who undertake LLN training are more likely to commit to further training. They typically experience an improved sense of self-worth and engagement, and are able to transfer skills to their community and family life (Gray, 2006).

For the employees such benefits include increases in the following: confidence and independence opportunities for multi-skilling understanding of job requirements understanding of workplace issues ability to take part in workplace activities workplace communication efficiency and productivity (Misko, 1996).

Relationships between employees and management usually improve and employees feel more committed to the company (Long 1997, The Conference Board of Canada 2002, 2005). It is unclear, however, whether LLN programs in themselves produce a greater sense of self-worth or whether this is a result of the company demonstrating interest in workers.

A report by the Canadian government (Human Resources and Skills Development Canada, 2005) summed up the range of social benefits employees gain from participating in programs:

Employees in these programs believe that they are more capable, take more pride in their work, have improved self-confidence and accept and act on suggestions for personal improvement more readily. Other improvements noted were a greater respect for diversity, improved communication and cooperation, greater willingness to take the initiative, improved problem-solving ability and an eagerness to take on new roles as mentors and peer learning coaches. Within families and communities, employees are able to help their children with their homework, participate more in voluntary activities and enjoy improved health. [HRSDC, 2005]

Hollenbeck and Timmeney (2009 in Salomon 2009) summarise the relationship between individual employee benefits and downstream benefits for the enterprise:

“Despite their understanding of the strategic nature of training, perhaps the most notable observation about employer involvement was the lack of interest in or attempt to measure potential business outcomes ... It became apparent through interviews that businesses became engaged in the initiative mainly as a benefit for employees. They saw it as a way to improve employee morale. Most of the business representatives understood and articulated the fact that if workers would improve their basic skills and exhibit higher levels of morale, then they would likely be more productive” (Hollenbeck and Timmeney 2009 in Salomon 2009).

A 2006 survey of Canadian businesses found that employers valued how their programs enhanced workers' lives, personally and at work, and thereby contributed to a culture of lifelong learning in the workplace (Plett 2007). A 2008 survey of European employers offering workplace literacy and essential skills training notes the connection some have drawn between “happier” employees and business outcomes. For example, in Ireland, while most interviewees believed that evaluation of organizational/financial impact, referred to as “hard measures”, was “important” or “essential”, they strongly supported evaluations that capture so-called “soft measures” or “intangibles”, such as positive changes in employees' attitudes and behaviours. Employers in this study were interested in an evaluation model that would help them identify evidence of increased morale, self-esteem, confidence and job satisfaction, greater participation and initiative, and a willingness to continue work-related training (Pye and Hattam 2008).

The *Catching Confidence Project* concluded that participation in learning leads to an increase in confidence among learners, manifested in improved feelings of self-worth, self-assurance, happiness and well-being, and a greater ability to speak up and consider taking on new challenges in actual every-day situations. Of relevance to employers, the study found that increased confidence translated into “greater independence, enhanced ability to carry out tasks and relate to managers and colleagues in both formal and informal situations, as well as a heightened sense of achievement at work.” Moreover, this study demonstrated that a more confident worker is better able to learn and is more inclined to pursue further learning (Eldred 2006).

A 2008 study on the impact of workplace LES programs in small- and medium-sized enterprises (SMEs) in Nova Scotia pointed to “significant possibilities that may deserve attention in future research and policy development” (Praxis 2008). According to the study, it appears worth considering whether:

- the most serious barrier to skills development among adult members of the labour force is not, as conventionally assumed, lack of skills (including literacy/essential skills) but rather the personal, psychosocial limitations on the capacities and orientations of workers as learners
- the concept of “essential skills” might usefully be broadened (and deepened) to include self-knowledge and self-confidence as learners – i.e. finding one's motivation, learning how, and becoming ready, to learn

These findings suggest that employers may be less focused solely on “bottom line” outcomes for workplace training investment than most governments seem to assume. If that is the case, then there is a need to develop more varied evaluation methods to measure a broader range of outcomes (Salomon, 2009).

d) Benefits to the wider community and government

The wider social benefits of participating in LLN programs have been recognised in the literature (Gray, 2006). A number of macro-level reports have identified wider social benefits from general gains in literacy in areas of health, financial literacy and reduction in crime (Hartley and Horne 2006). According to Gray (2006), employees who enhance their LLN skills use their new knowledge at home and in the community, and gain confidence, which can lead to an interest in further training.

According to Woods *et al.* (2006):

“A recurring theme in the literature is the diversity of benefits improved literacy can offer—for individuals and their families; the workplace; the community; and the economy. This suggests that in assessing the impacts of workplace programs, it would be useful to go beyond quantitative measurement to consider broader social capital gains.”

There is a lack of research that directly measured the impact of literacy training to governments in terms of: welfare spend; contribution to the economy; tax take; and other portfolios, such as health. One study, Taylor, Evans and Mohamed (2008), produced an oft-reported finding that a 1 percent increase in a country's score on the IALS has been “associated with an eventual 2.5 percent relative rise in labour productivity and a 1.5 percent rise in GDP per capita”. Although such figures are impressive, it is difficult to know how reliable they are in terms of what constitutes communication time, how data on this has been collected, and costed.

Studies have also linked participation in workplace LES training to gains in the home and the community (Gray, 2006). The Catching Confidence Project confirmed this link, finding that increased confidence among learners can lead to more active or effective parenting, breaking away from harmful relationships or starting new ones and becoming more involved in community life and as citizens (Eldred 2006).

In other words, workplace LES education can help learners develop not only skills needed for work, but social capital, which allows them to build social relationships and networks based on trust and shared values, contributing ultimately to community well-being and democracy, as well as social equity and justice. The impact of LES training beyond the workplace, enhancing the learner's “whole life”, is an outcome emphasized by the “social practice approach” to workplace LES (READ Society, 2009).

Blundell *et al.* (1999) and Johnston (2004) indicate that even in the wider fields of literacy training and training in general, there is a lack of empirical research that directly examines the returns to the national economy. Due to the suggested short-comings of cross country level regression analyses, Johnston (2004) suggests that studies that examine the economic returns to the individual and the employer provide greater insight to the impact of literacy training on the National economy. Pearson *et al.* (1996) also suggest that the wider impacts of literacy training to the national economy and/or the government can be indirectly measured through measuring the outcomes that accrue to the individual (for example ability to maintain employment) and the enterprise (for example productivity).

Box 7 Ananadiou, Jenkins and Wolf (2003) on the state of workplace LLN research

In reading this literature review it should be apparent that our knowledge of basic skills training and the effects of poor basic skills in the workplace is fragmentary and highly inadequate. Given the importance of the subject, it is really quite remarkable how limited are the studies in this field of enquiry. Fundamentally, the lack of good research stems from the absence of good data – both quantitative and qualitative. Here we draw together what appear to be some of the key gaps in the evidence. Baseline descriptive information on the extent and nature of basic skills training provision in the workplace is highly inadequate.

In order to gain a proper understanding of basic skills tuition programs and their effects, longitudinal (panel) data are required so that the effects of the training program can be tracked over time. The dataset would clearly need to contain firm-level information both on training at the workplace and on business performance outcome measures such as productivity, turnover and financial performance. If such data were to become available, for basic skills and for training more generally, it would enable robust quantitative estimates of the effects of such training to be obtained. While large data sets of this type are a necessary pre-condition for evaluating the general effects of basic skills (and other) training, there is a limit to the quantity and quality of data that can be obtained this way. Detailed firm-level studies are also needed if we are to understand the precise circumstances in which basic skills programs impact on different aspects of the workplace, and how these effects are related to program features. Here, too, the research base is extraordinarily small. The tiny number of good quantitative studies which look at the impact of basic skills, or other training, at firm level, all use data from US plants (e.g. Krueger, 1994, 1998).

Up-to-date and accurate information on the costs to business of poor basic skills is also of great importance in assessing the likely gains from policy interventions aimed at improving literacy and numeracy amongst those in the workplace.

To summarise, we suffer from an absence both of large-scale survey data, especially at the firm level, and of case study material on basic skills training in the UK. Information both on the costs to workplaces where some individuals have poor basic skills and on the effectiveness of skills training interventions is needed. It is likely that the problems caused to employers by poor basic skills vary between industrial sectors, and also within sectors according to the technology used and the type of business strategy being pursued. The distinctive ways in which poor basic skills lower productivity and/or create additional costs at work need to be analysed through case studies.

Source: Ananadiou, Jenkins and Wolf, 2003

4.4.4. Isolating the net benefit of training

Enterprise performance is affected by a myriad of factors – the larger the enterprise, the greater the number of potential variables that can influence enterprise performance. These include the level of competition in the market, the level of investment in new technology, the demand for the products and services of the enterprise, the skills of the management team and so on. In practice, although training may influence the performance of the enterprise, it is difficult to separate the impact of training from the impact of other variables (Smith, 2001).

The issue of ascribing the change in business outcomes to the training intervention is one of the most commonly discussed in issues in the research literature. A selection of author observations is included below:

Billet (1994) neatly summarises these issues and is worth quoting at length:

The exhaustive and interrelated list of factors which confound ease of making quantitative statements about the benefits of investment in themselves provide an interrelated set of concepts about how training is, of itself, only one part of the factors 'associated with cost-effectiveness of training. Put another way, this means that training alone is not a sufficient activity for the improvement of productivity or the realisation of a return on a training investment.

The benefits of training needs to be considered in conjunction with other factors, particularly with the nature of work practice, the scope of workers' activities and the decision-making roles afforded to employees that training alone is not a sufficient activity for the improvement of productivity or the realisation of a return on a training investment. The benefits of training needs to be considered in conjunction with other factors, particularly with the nature of work practice, the scope of workers' activities and the decision-making roles afforded to employees.

Studies that have addressed the question of a direct cost-benefit analysis overwhelmingly concur that accounting for all the variables which influence return on investment is either impractical or impossible (Billett 1994a, Hedges & Moss 1996, Leimbach 1994, Robinson & Robinson 1989). The consensus is that there are too many complications in the form of compounding and contradictory variables to sensibly suggest that returns can be quantified as 'bottom-line' statements. Articles proposing a comprehensive approach tend to be prescriptions for practice, rather than being based in practice. The exceptions offer analyses which are far from being comprehensive. Those studies reporting the frustration and complexity of the task are usually the product of empirical activities which have attempted to identify all the variables and consider how they can be evaluated.

Gray (2006) succinctly summarises the issues:

The relationship between training and outcomes is complex, and it is difficult to control adequately for extraneous factors, or to identify which component of the intervention or whether the fact that there was an intervention at all had most influence on the outcome. Issues of perspective, measurement and attribution all need to be considered and addressed in designing an evaluation. As with literacy programs themselves, clarity about the goals of any evaluation is essential, along with reality about what outcomes can be expected in the short term.

Grugulis and Stoyana (2006) make this point:

There are three main reasons for the difficulties in establishing a link [between skills and productivity]. Firstly, organisations are complex social systems and it is unlikely that there is a single generic cause of productivity and profitability. Secondly, there are a number of ways in which firms can succeed, including deskilling and work intensification. Thirdly, skill is not simply an input to organisations' productivity.

While reports are consistently positive, numerous authors point out that, in attempting to assess the benefits and impacts of literacy programs, it is extremely difficult to control for intervening factors such as external market influences, personal characteristics, incentives and disincentives for acquiring or displaying skills, the way work is organised and the degree of autonomy workers have (Gray, 2006).

An important assumption—that the program is the causal factor—is problematic because many factors change over time in addition to program participation. This may lead to 'statistical endogeneity' – that is the equation model may not properly capture the mediating factors which impact on the causal

relationship between the particular training event and the downstream results. The Canadian Measures of Success report discusses mediating:

- **individual factors** such as learners' engagement with the learning activity (e.g. attendance, active participation, completion of learning tasks), and
- **workplace factors** such as management expectations (e.g. awareness, intentionality, engagement) related to the training intervention.

Moderating factors include such things as: individual characteristics (e.g. age, gender, initial skill level, attitude to learning); the socioeconomic context; the policy, program and institutional environment, and the workplace culture.

Determining the extent to which changes in the workplace resulted from improved LLN skills is not straightforward due to the complex relationship between these two aspects (Gray, 2006). For instance, it is not simply a case of course participants willingly transferring their LLN skills to the workplace; there are a number of associated preconditions, such as opportunities being provided in the workplace for them to do so (Benseman, 2012; Benseman, 2010). Individuals' ages, skills, and socio-demographic characteristics may change as well as the local economy and, thus, the demand side of the labour market (Hollenback 2012).

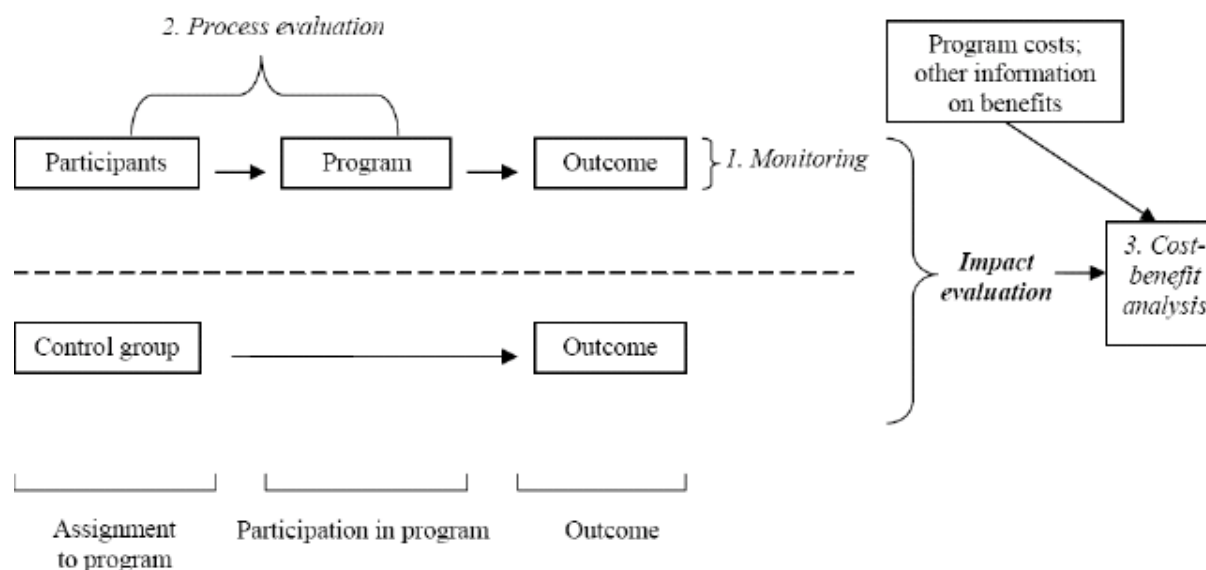
When attempting to isolate the effects of training, Barker (2001) points the "serious methodological concern" that is the attribution of impacts to training in an environment where many influences are at play. Barker goes on to say that ROTI represents the best estimate given the conditions, time and resources the organisation was willing to commit. It is important to tease out extraneous factors or to decide when assessment can go ahead with appropriate caveats. For example, Shelton and Alliger (1993) advocate and explain a practical approach to calculating ROI. They suggest that enterprises should base their analysis on the use of existing data. Suggested data include: accidents rates; absenteeism; number of processing errors; units produced; unit and operating costs; and frequency of safety violations.

In making these assumptions, it is necessary to show that results are attributed to training/learning and not other intervening variables. Detailed ways to isolate training's effect on performance are described in the research literature. They include:

- use of control groups
- before/after studies (historical data)
- aggregate studies
- forecasting
- participant estimations
- supervisor estimation
- management estimation
- customer input
- expert estimation
- subordinate input

A useful schema, developed by Borland, Tseng and Wilkins (2005), which shows the distinction between monitoring, process evaluation, cost-benefit analysis and impact evaluations is shown below.

Figure A4.3 Impact evaluation design



Source: Borland, Tseng and Wilkins (2005)

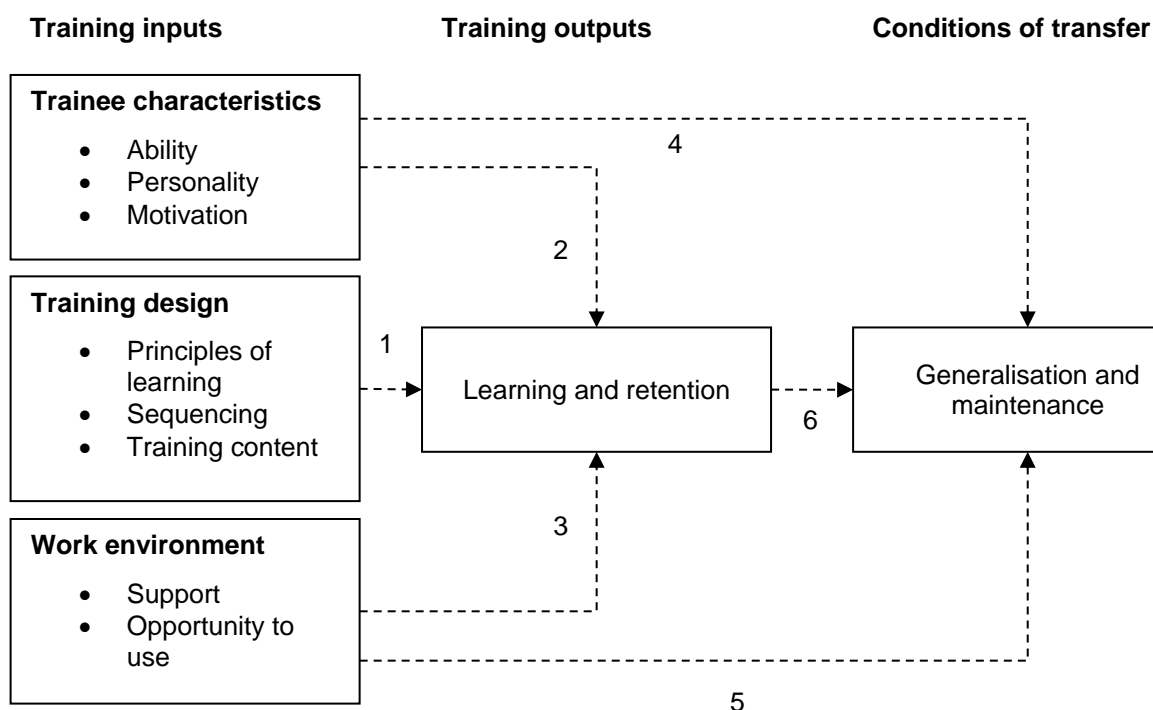
Outcomes can be immediate, intermediate or long-term. Immediate outcomes are the changes in the level of relevant skills, behaviours, and/or characteristics that are not of value in themselves, but are valued only because they support the attainment of the long-term outcomes of interest. Chronologically, we might expect these outcomes to occur either during, immediately after or shortly after the program (Salomon, 2009).

According to the Measures of Success study, workplace training is hypothesized to lead to intermediate outcomes related to human capital (increased knowledge and skill level), social capital (increased network size and improvement in network quality), psychosocial outcomes (such as changes in self-esteem and self-confidence), as well as practices and behaviours. Some of these outcomes may also be mutually reinforcing. For instance, the literature proposes the possibility of a mutually reinforcing relationship between human capital, psychosocial capital and social capital. The logic model also includes two sets of overlapping intermediate outcomes: workplace performance and practices that individuals engage in their everyday lives. The two sets of outcomes are depicted as overlapping to illustrate an ambiguous delineation between learners' personal and workplace practices and behaviours.

To arrive at these outcomes, there are a host of potential mediating and moderating factors (Salomon, 2009). Mediating factors explain how or why a relationship may exist between an independent and dependent variable. Three categories of 'mediating' variables are discussed in detail:

- Business factors;
- Program design factors;
- Cohort factors; and
- Program evaluation factors

Baldwin and Ford (1988) summarise the 'transfer process in terms of these same three factors in Figure A4.4

Figure A4.4 Model of the transfer process

Source: Baldwin and Ford (1988, p. 65)

a) Business factors which may impact on results

Employer-supported education and training often exists as an element within a wider matrix of human resource management policies, and it is these 'bundles' of policies that collectively produce results for the firm (Kling 1995; Ichniowski, Shaw & Prennushi 1997). Hence it can be misleading to examine the effect of training in isolation from these policies (Long in Smith, 2001).

The training intervention is only one part of a larger system where other factors play a role in influencing worker behaviour, performance, and business outcomes, which is an important consideration when measuring the benefits to training (Smith, 2001). Johnston (2004) and Blundell *et al.* (1999) highlight the need to control the impact of other variables and consider all costs that accrue such as the cost of foregone labour to participate in training. Misko (2001) puts it succinctly:

In calculating any ROI in training it is important to be aware of the influence on the bottom line of events which have nothing to do with the training that has been implemented but have a major impact on the profits and losses of a company.

Catts *et al.* (1996) caution that 'business indicators, especially over the medium term, are affected by many factors and training cannot be isolated as a factor, at least in single study research' (p.78). The types of factors which could be considered for a particular enterprise could include:

- Business factors (e.g. marketing, advertising, market demand, economy)
- Organisational factors (e.g. reward, culture, management, recognition, prospects)
- Personnel factors (e.g. experience, training, pride, personality, motivation)
- Psychophysical factors (e.g. comfort, noise, privacy, aesthetics, colour, ergonomics)
- Workplace facilities (e.g. furniture, space planning, IT, storage, meeting space)
- Environmental conditions (e.g. temperature, air quality, ventilation, lighting, and acoustics).

The impetus for training may be in response to a training needs assessment at organisational, occupational and/or individual level. While the context can be negative (e.g., high turnover or poor performance, absenteeism or conflict, compliance issues like sexual harassment) or

positive (e.g., rapid growth, merger/acquisitions, new product development, new business opportunities) (Barker, 2001).

Catts *et al.* (1996) states that there are three primary reasons for industry training, namely, to introduce new technology, to develop work methods including multi-skilling the work force in existing technology, and to develop personal and interpersonal skills. The link between training and business performance is most easily established for training in technical skills or product knowledge, and least so for personal and interpersonal skills.

Training may be *mandatory* in relation to health and safety or occupation-specific issues but much of it will be *discretionary* where organisations appreciate the added value that they will gain from having highly skilled and knowledgeable employees. In addition to language, literacy and numeracy programs, there can be, at any time, a number of intersecting, complementary or even contradictory workplace programs impact on one, a group or all workers at any time, including but not limited to:

- Workplace Health and Safety (also known as Occupational Health and Safety);
- Technical training, vocational training and reskilling (e.g. new machinery, processes);
- Information technology (e.g. basic training, upgrading to new systems etc);
- Hygiene and sanitation;
- Team building;
- Cultural diversity and awareness;
- Documentation and records management;
- Conflict resolution and negotiation;
- Customer service; and
- Communication.

A number of reports have cautioned against evaluating programs from the narrow perspective of measurable gains and outcomes without taking into consideration the environment in which the program was offered – what Salomon (2009) refers to as the “Evaluation Context”. Recent research, for instance, has shown that one of the barriers to knowledge transfer in workplace literacy and essential skills training is the “organisational climate, including poor communication, poor employee morale, lack of a learning culture or lack of encouragement”.

Finally, Salomon (2009) points to the workplace factors such as incentives, clarity of roles and expectations, and whether there is coaching and reinforcement which may mediate the relationship between training and associated outcomes since they explain how workers apply what they have gained from training to the job.

b) Program design factors which may impact on results

According to Mikulecky and Lloyd (1993):

Evaluation of workplace literacy programs is further complicated by the fact that there appears to be a variety of workplace literacy problems, each calling for a different sort of instruction. Still, over the last two decades, we have learned a good deal about what to look for in effective workplace literacy programs. For example we have learned that:

- *There are several different workplace literacy problems, calling for a multi-stranded approach to instruction. Improvement takes a significant amount of learner practice time.*
- *Transfer of learning from one application to new applications is very limited.*
- *Significant learning loss occurs within a few weeks if skills are not practiced.*

Misko (2001) describes the range of training situations which need consideration:

- **formal training** delivered by trained teachers or instructors in educational institutions;
- **informal training** delivered on the job by supervisors and work-mates, or off the job by in-house trainers; and
- **flexible format training** delivered on-line training or through self-paced learning.

More specifically, Benseman and Sutton (2007) and Ananiadou, Jenkins, & Wolf, (2003) highlight the factors which may need to be considered when evaluating LLN training:

- Number of hours of training (length of instruction)

- Intensity of instruction;
- Delivery model (contextual, decontextual)
- Focus/purpose of training delivered (e.g. documentation, ICT, workplace safety)
- Degree to which content is work/enterprise-related.
- Quality of training
- Relationship between employer and training organization (e.g. history, shared understanding, guiding principles of training)
- How the training program was setup, designed, maintained etc
- Number, type, volume of other training activities occurring at the same time
- Changes in the internal environment (e.g. organizational restructure)
- Changes in internal process (e.g. LEAN manufacturing etc)
- Changes in the external environment (e.g. new legislation, new competitors)
- New technologies (e.g. PDA devices)
- Whether instruction is qualification-oriented
- The extent of formal assessment (diagnostic and summative)
- Trainer experience (e.g. qualifications, industry sector experience)
- Whether basic skills are integrated with other skills and content
- Learner persistence
- Retention over time and scope to transfer into the workplace

It is important to consider the contextual nature of literacy in the workplace – both in terms of training and in the acquisition and transfer of literacy skills. Training in isolation does not mean that an organisation will be more productive and effective. Training opportunities need to be appropriate in terms of need, content and the way that it is delivered so that they will add value to the employees and the overall organisation. For example, Chiaburu and Lindsay (2008) comments: *‘training programs are effective only to the extent that the skills and behaviours learned and practiced during instruction are actually transferred to the workplace’*.

Jurmo (2004), an influential researcher of workplace literacy education, outlined two broad approaches to workplace literacy education, the second split into two sub-categories: decontextualised and contextualised (functional context and collaborative/problem-posing). Barton and Tusting (2006) state that people’s identities, the way workplaces are organised, and the incentives or disincentives people perceive for displaying skills all influence the literacies they engage in. They believe that the specific features of reading in one site do not necessarily transfer into another; the use of literacy in any given context depends on workers’ knowledge and understandings of the social setting.

One of the significant changes occurring in workplace LLN programs in more recent years is the increasing emphasis on training which integrates LLN education with other workplace training. Courtenay and Mawer (1995) present persuasive arguments for an integrated approach to training. They state the following position:

The prospect of significant numbers of workers being denied the opportunity to develop vocational skills until they have mastered some general level of language or literacy and numeracy proficiency is increasingly unacceptable to industry and training participants. It is also at odds with current theories of effective teaching and learning. What is needed is an approach to vocational education and training which takes account of the language, literacy and numeracy competence essential to the job or occupation, the knowledge or skills of learners and the language demands and appropriateness of the training program. Integrated programs do this (p.9).

According to Baker (2001), training delivery takes many, many forms:

- self-study or instructor-led
- on-the-job or in a classroom/training site
- traditional on-site or distance delivered
- computer assisted and/or computer managed
- individualized or group instruction
- actual, hands-on or using virtual reality
- Training attendance / participation may be voluntary or mandatory.
- Training duration may be short-term or long-term, once-off or continuous.
- Training focus may be hard or soft skills.

Gray (2006) found that industry or sector-specific training is successful where there is:

- careful front-end interviewing and enrolment processes for applicants
- trial periods at the beginning of training
- development of training content and a training culture that reflect industry norms
- fitting of the training to the student
- tailored and flexible support during and after training.

While Vorhaus *et al.* (2011) found promising evidence in relation to:

- benefits of embedding LLN in vocational programs, including a higher likelihood of retention and completion;
- the positive impact on learners of working with qualified teachers – the more qualified the teacher the greater the learner progress;
- positive personal and social returns on improving LLN skills; and
- the need for multiple ways of engaging in learning – in class, self-study, distance learning, ICT supported learning
- blended learning – combining face-to-face and technology-based, formal and self-study methods;
- the significance of techno-mathematical literacies – a combination of ICT, literacy and numeracy skills; and
- the time required to make significant learning progress – often in excess of 100 hours.

Benseman *et al.* (2005) point out that it is difficult to estimate how much learning time is enough in the absence of any agreement on what learners should know or be able to do when leaving programs. Torgerson *et al* (2004) found that learners need at least 100 hours of instruction to make progress equivalent to one grade level in literacy, but most students receive far less than this.

According to Mikulecky & Lloyd (1993):

“...the more effective workplace literacy programs report reducing learning time to 50-70 hours of practice for a year of gain. No program, however, has been able to consistently improve reading ability from low-level to high school or college standards in 20, 30 or even 50 hours. This is important to note because in many industries the standard training class is less than 30 hours... The fact that literacy gains usually take more time than is typically allocated in workplace training programs presents a problem. For gains to occur, more practice time must be found. Effective programs demonstrate at least three possibilities for increasing practice time. Some programs immerse employees in integrated technical/basic skills classes full-time for several weeks. Other programs provide sequences of courses allowing learners to move from one course to another and eventually to continue learning at technical schools and community colleges. A third program type uses workplace materials in training classes and thus reaps the bonus of additional practice time as learners read these same materials on the job.”

The ‘100 hours’ benchmark is often cited in the literature and is considered to a minimum benchmark to assume some level of change on wider organisational performance in terms of changes in assessed literacy skills outcomes (Comings (2009). Three studies have found learners made gains when they received over 100 hours’ teaching. Two other studies found learners improved with 50 or more hours’ teaching. Although most research is focused on the total amount of teaching provided, intensity and regularity of tuition are also likely to be important (Basic Skills Agency, 2000; Boudett and Friedlander, 1997; Comings, 2003; Kruidenier, 2002; Shameem *et al*, 2002).

A paper by the NZ Department of Labour. (n.d.) reports that:

“In order to have sufficient statistical power to identify the effect of the training on a given outcome variable with reasonable confidence (i.e., to have a reasonable chance of obtaining a statistically significant result), the training intervention may need to be reasonably substantial, and the number of sites and/or number of time periods may need to be relatively large” (p 8)

Transfer of learning is also an issue (Gray, 2006). Without a plan to help participants in LLN programs apply what they have learned, their skills may not transfer to the work setting, or from

one aspect of their work to another (Mikulecky and Lloyd 1993, Taylor 1997, Barton and Tusting 2006). Taylor (1997) identifies three conditions for transfer: training content must be applicable to the job; the trainee must learn the content; and the trainee must be motivated to change job behaviour to apply what s/he learned.

c) Training cohort factors which may impact on results

Performance in particular training activities is often influenced by the natural physical and intellectual abilities of participants in the training programs, and their prior familiarity and achievements in other similar activities. In addition, it is possible that a particular cohort of students does very well in a particular training program at a particular time, and that another cohort of students undertaking the same training program does not do as well. There may be reasons for this.

Training material and technical reading material in the workplace tend to range in training hours and difficulty. Some learners, such as high school graduates who need to brush-up reading skills, can learn to comprehend technical materials with a minimum of instruction time (about 30-50 hours according to Mikulecky & Lloyd, 1993). Other learners who have extreme difficulty with even simple reading, such as signs or simple sentences, may require several hundred hours of instruction or, indeed, may never be able to comprehend some technical material. The average program takes approximately 100-120 hours of practice time for learners to make the equivalent of a year gain in reading ability (Mikulecky and Lloyd. 1993).

A4.4.5. Converting changes in intangible “soft” skills into tangible “hard” data

The conversion of intangible benefits to tangible results is considered by many to be one of the key methodological challenges in this type of work. Philips (1996) suggests a model to convert ‘soft-skills’ data to monetary values by focusing on a single unit and calculating the annual value. Where estimates are required as part of such calculations, Phillips urges the need to take a conservative approach to attributing values and the need to be able to explain approaches and assumptions. Some consider these conversions to be so problematic that their omission is preferable to explaining their inclusion (Hollenback, 2012):

“... the desire to be as conservative as possible in calculating ROIs or benefit/cost ratios suggests that non-monetized benefits should be omitted from consideration, but every effort should be made to include full costs.”

Supervisor observation

Mikulecky and Lloyd (1993) use an approach where, to obtain another perspective on the information gathered directly from the employees, supervisors were asked to assess each worker on aspects of job performance that contributed to productivity and that were related to task competence, communication, teamwork, and paperwork skills. Assessment instruments were developed with the assistance of those who would be using them to determine what aspects should be covered and how to describe behaviours typical of top, average, and bottom performers. Specific aspects included were the ability to:

- Set up and calibrate a machine
- Use recording forms
- Trouble-shoot machine errors
- Also assessed were attitude indices such as:
 - How much they took responsibility for their own work
 - How well they worked as a member of a team
 - How committed they were to company goals

An alternative approach is to use an overall assessment of the performance of each employee, as rated by their supervisors, to calculate the utility of the training or literacy program in terms of its benefits minus its costs (Schmidt, Hunter, & Pearlman, 1982). For this calculation, the factors required are an estimate of the difference in dollar value to the company between an outstanding and an average employee, the likely duration of the training's effect, and the cost of the program.

Table A4.7 Supervisor assessment of employee(s) (Mikulecky & Lloyd, 1993)

Ratings	Bottom	Average	Top
	1 2 3	4 5 6 7	8 9 10
Communication	won't speak; can't express self; nervous; won't shake hands	open, relaxed communicator; good listener and responder	processes information and responds with own analysis
Concerns, problem – solving	doesn't consider alternative solutions; makes irrelevant suggestions; never thinks of consequences	can suggest solutions, but not work through them in detail	suggests solutions and analyses consequences. including a timeline
Handling conflict	antagonistic; turns back on others; makes abrupt denials and impolite comments	cooperates with others most of the time, but some antagonism	empathetic; cooperative; consistent attitude
Self-esteem	shy; uncertain; overwhelmed by life's problems	some confidence in self; but life not really under control	confident; usually in control of life and of most situations
Setting goals	unable to plan ahead and set goals	some short-term planning and goal setting	clear plans for future; definite, reachable goals
Commitment	lacks motivation; no interest in company goals	some commitment; but just doing a competent job	conscientious; committed to company goals
Responsibility	has to be told what to do and checked on	can be left to carry out routine work	dependable; takes responsibility for own work
Initiative	ignores machine errors and lets them build up	realizes machine errors and attempts immediate solution only	monitors machine errors and deals with them through the team
Paperwork	Intimidated by job-related paperwork and does it poorly	does job-related paperwork, simply keeping pace	completes all job – related paperwork and tries to improve procedures
Machine setting	unable to set machines correctly	usually sets machines correctly, but doesn't always check settings	sets machines correctly and checks settings thoroughly

Worker self-assessment

Part of the 'Research on Expectation' research approach, the purpose of these interviews, surveys or focus groups is to assess attitudes toward the workplace and competencies associated with the workers' jobs. Employees are asked about changes in:

- types and amounts of reading and writing they do on the job
- practices
- productivity
- process and ability
- beliefs
- plans
- attitudes
- impacts outside work

Davidson *et al.* (1997) provides a method to evaluate a perceived change in the level of competence of a worker, as assessed by the trainee themselves rather than a formally accredited competency assessor.

- Identify competencies addressed by the training program
- Weight competencies for the program against total competency profile
- Develop assessment instrument, scale, and review time to complete
- Each design manager (trainee) to conduct self-assessment before the training
- After training, each design manager (trainee) to repeat self-assessment
- Reported change in competency as a result of training calculated and averaged
- Costs and benefits of training identified and calculated

A4.4.6. Adjusting the time horizon to more fully capture future benefits

No matter which of the techniques are used to identify the net impact of a program, a cost-benefit or ROI analysis needs to make an assumption about the time period over which benefits (and costs) may accrue (Hollenback 2012). In many cases, program administrators, funders, or evaluators will want to examine periods of time that extend beyond the data. In other words, the analysis will need to extrapolate benefits or costs.

However, the limitations of these types of data, already based on a series of assumptions and estimations, make such extrapolations particularly fraught. Evaluations to date have not allowed enough time for gains and outcomes to become fully apparent (Gray 2006). There is therefore a call for “longer timeframes to allow for more robust data collection” (Benseman and Sutton 2007). In this connection, a 2002 study on training and ROI in the UK (Keep, Mayhew and Corney) reviewed by Gray pointed out that, “Lasting gains are those most to be desired, but are the most problematic to evaluate because the modern political process is extremely impatient. It wants long-term results, but it wants them to be demonstrated fast” (Gray 2006).

Benseman and Sutton (2007) state that it takes some time to achieve significant and lasting impact from LLN programs, particularly when researching impacts such as changes in workplace practices or sustained changes in literacy behaviours within a family and community life. In that New Zealand study, it was found that the programs being studied “may be effective, but the research may be unable to demonstrate their impact at such an early stage of development”.

A4.4.7. Deciding on the level of data aggregation

Most training program evaluations can be categorized into the following four categories of data aggregation:

- individual worker;
- groups of workers;
- multiple sites or plants;
- whole-of-organisation or enterprise.

A number of labour economists have attempted to empirically demonstrate the relationship between training and labour productivity utilizing data on individual workers. Since data on labour productivity are very limited, these studies take an indirect approach, relying on the observed relationship between training and wages as evidence of a relationship between training and productivity (e.g. Lillard and Tan, 1986). According to Keep, Mayhew and Corney (2002), “it is effectively impossible, given the limitations of data, to observe or calculate directly extra productivity of individuals”.

An approach of group evaluation is that one can target the evaluation to the same group as those within the ‘treatment’ group of the training program. This can be achieved by: (1) selecting the group involved in the work to be trained/tracked; (2) helping this group to select several measures appropriate to the work; (3) helping the group clearly define measures, frequency of measurement, and whether benchmarking is appropriate; and (4) documenting the results (Barker, 2001).

When workers are producing an actual physical output, the quantity or quality of that output can be measured before and after training, or a comparison can be made between the output of trained and untrained workers. Programs that make such assessments are usually broad range training programs which can compare the output of a trained plant, division, or work team to a comparable control group. Assessing productivity impact at levels below the work-team is often precluded because many industries do not collect productivity information (i.e., production and defect rates) at the individual level (Mikulecky & Lloyd, 1993).

Mikulecky & Lloyd (1993) make the following recommendation on data disaggregation:





“... in order for the gathering of output data to be successful, it must be possible for a company to arrange training for a whole work team and for mechanisms to be put in place, perhaps especially for this purpose, to obtain the output data for that team.

Though previous studies have discussed the need for assessing productivity impacts of workplace literacy programs, few have tried to do so. This pilot assessment attempted to use some of the indicators of productivity suggested in the research literature (i.e., attendance, accident reports, useful productivity suggestions made by employees, etc.). The pilot test revealed that it is possible to gather such data with a minimum of effort on the part of employers.

It also revealed that the information is not of great use if sample sizes are small and time between assessments is not very long. If a class and control group are comprised of only 15 individuals each, the impact upon absences of a single individual with the flu can overpower all other factors. This would be less likely to occur with much larger groups where influences of sickness would be more likely to balance out. Similarly, safety is an important indicator of productivity, and many workplace literacy programs address safety. Accidents among a group of 15 people during a six month period are usually rare, however, and therefore not likely to be of much use in determining program impact. This same pattern held for productivity suggestions and discipline measures as indicators of program impact. Neither employer maintained data on individual employee productivity, so those measures were not available. Such indicators are likely to be of worth when available."

Figure A4.8 outlines the four approaches to data aggregation and provides a broad comparison of their relative advantages and disadvantages.

Table A4.8 Summary of approaches to data collection

Level of aggregation	Data sources and research method	Advantages	Disadvantages
Approach 1: Individual worker 	Data sources <ul style="list-style-type: none"> Worker Supervisor(s) Trainer Research method <ul style="list-style-type: none"> Highly qualitative Interviews and surveys 	<ul style="list-style-type: none"> Opportunity to present a detailed “story” of one worker Some degree of precision in estimate of net benefit (i.e. more information = fewer assumptions) 	<ul style="list-style-type: none"> “Stories” are highly contextualised and lack generalisability Privacy and confidentiality issues Reliant on supervisor/manager observation HR/finance unit need to extract data at individual worker level
Approach 2: Groups of workers 	Data sources <ul style="list-style-type: none"> Workers Supervisor(s) Trainer Research method <ul style="list-style-type: none"> Qualitative Limited quantitative 	<ul style="list-style-type: none"> Program-based – all training participants can be tracked 	<ul style="list-style-type: none"> Membership and composition of training group is difficult to track Aggregation requires more assumptions Reliant on supervisor/manager observation HR/finance unit need to extract and categorise data into the training and control group
Approach 3: Multiple sites “Matched plants” 	Data sources <ul style="list-style-type: none"> Workers Supervisor(s) Trainer Site manager Research method <ul style="list-style-type: none"> Qualitative Some quantitative 	<ul style="list-style-type: none"> Potential to use control groups if data are available Potential to make comparison across various sites 	<ul style="list-style-type: none"> Membership and composition of training group is difficult to track Aggregation requires more assumptions
Approach 4: Whole organisation 	Data sources <ul style="list-style-type: none"> Workers Supervisor(s) Trainer Site manager Research method <ul style="list-style-type: none"> Qualitative Some quantitative 		<ul style="list-style-type: none"> Membership and composition of training group is difficult to track

3.4.8. Analytical techniques

There are a number of approaches, of varying levels of sophistication, which have been discussed in relation to measuring the impact of workplace literacy training. Some of the more commonly cited approaches to data collection are summarised in Table 3.9.

Authors repeatedly lament the challenges of conducting experimental research in this field owing to issues with data quality, completeness and appropriateness. A fundamental issue is that it can be difficult to establish causality between outcomes and the training intervention without an experimental design. Ideally, the most common approach is to randomly split employees into two groups—those who receive training and those who don’t—and determine the difference after training. This is not always possible and can be unethical depending on the training that the control group does not receive (for instance, any type of safety training for a hazardous environment). Randomised controlled trials (RCTs) are generally acknowledged to be the best way to estimate net benefits and the ‘counterfactual’ experience (Hollenback, 2012).

Ananadiou, Jenkins and Wolf (2003) make the following recommendation in terms of preferred approaches to estimating the net benefits of workplace literacy training:

“The preferred approach to analysing training effects is to collect data on the same sample of firms at two or more points in time. This is known as panel data, and panel estimation techniques can then be applied. If panel data are available it is possible to look at changes in company performance over time, and their association with changes in the amount of training provided. Such panel studies have some problems of their own – for example, measurement error is likely to be exacerbated by focusing on changes rather than levels (see Huselid and Becker, 1996) but it is probably safe to say that panel studies are generally to be preferred to cross-sectional estimates of the links between training and organisational outcomes (and their results given correspondingly greater weight)”

Using a trend line is an inexpensive way to determine if the same trend has occurred with or without training. With a trend line, you chart current performance as a base and extend the line into the future. You might put months of the year on the x axis and number of customer complaints on the y axis. Then plot the number of complaints each month leading up to the training. After training, you will again plot the number of complaints to see if the line has changed.

The results obtained from multiple regression analyses may not be statistically valid if there are unobservable characteristics which determine both company performance and the level of training provision. If this occurs, training is described as an endogenous variable, and social scientists refer to this statistical problem as ‘the endogeneity problem’. There are procedures for dealing with this problem, but it is important to realise that the training area is one in which the possibility of endogeneity must be taken seriously when interpreting research findings (Ananadiou, Jenkins and Wolf, 2003). Factors simply not captured in the data sets may be a highly influential factor e.g. management style, technical innovation etc. For example, Shackleton (1993) contends that:

Correlation does not imply causation, and there is a distinct possibility that the underlying cause of both high commitment to training and higher productivity may be different managerial cultures (Shackleton 1993)

Hollenback (2012) summarises these issues:

The justification for randomly assigning a control group using either a quasi-experimental or a “post- minus pre-” approach is that they are techniques that allow for the identification of a treatment effect. That is, we want to have some statistical certainty that participation in the workforce development program, and not the characteristics of the participants, is what caused particular labour market outcomes (which might be positive, essentially zero, or negative). Another method of identification, if one has the appropriate data, is to estimate a regression model that includes a dummy variable for being in a program. A linear regression controls for all of the observable characteristics of the program participants.

Table A4.9 Summary of approaches to data analysis

Approach	Description
Randomised control trials Difference-in-difference analysis	Individuals are randomly assigned to receive a program intervention, whereas others are randomly denied. Because assignment is random, the individuals who do not receive the program intervention form an excellent counterfactual for those who do. If a random assignment experiment is not feasible, however, then an alternative counterfactual must be found.
Panel data and trend lines	Collect data on the same sample of firms at two or more points in time. This is known as panel data, and panel estimation techniques can then be applied. If panel data are available it is possible to look at changes in company performance over time, and their association with changes in the amount of training provided.
Multiple regression	The standard method of estimating the benefits of any training for employers – basic skills or otherwise – is to conduct a multiple regression analysis on a sample of companies with some measure of firm performance (profits, productivity) as the dependent variable and a measure of training as an explanatory variable, along with control variables which may also influence firm performance, such as the capital stock, composition of the workforce, industrial sector and so on. Whether training has a statistically significant effect on firm performance, after allowing for the influence of the control variables, can then be assessed (Ananadiou, Jenkins and Wolf, 2003).
Internal rate of return (IRR)	The IRR is the rate of interest that equilibrates the returns from an investment to the cost of the investment. From an investor's perspective, the IRR represents the maximum interest rate that the investor would be willing to accept in order to proceed with the investment. Just as with ROI, an investor prefers larger IRRs. If the returns to the investment and the costs of the investment have been adjusted for inflation, then the IRR is a real (interest) rate; if not, then it is a nominal rate (Hollenback, 2012; Davidson <i>et al</i> 1997)
Net Present Value (NPV) – the time value of money	The NPV provides a method for comparing the value of money now with the value of money in the future, taking into account all the costs that are associated with that money. This means that the calculation includes the initial costs as well as benefits or profits that are to be derived in the future. A positive NPV means that the current investment is better than the alternative investment; a negative NPV means that the alternative investment or not borrowing is better (Davidson <i>et al</i> 1997).
Measuring the opportunity cost	Estimating the cost of opportunities foregone. Putting a figure on the cost of lost sales or reduced output which can be directly linked to poor or insufficient training, although powerful evidence, the process of calculation is extremely challenging. If identified these costs can be included in ROI and NPV calculations.

In a major Australian study, Doucouliagos and Sgro (2000) designed an integrated approach to evaluating ROI in training. This approach considers the multi-dimensionality of the influences on training outcomes. In doing so, they integrated various methods for calculating the ROI on training. Their model is summarised in Box 2.

Box 8 Doucouliagos and Sgro's ROTI model

Step 1—Collecting the relevant qualitative and quantitative data

Collect information on the measures of performance that will be used, the measures of training, direct and indirect costs of training, and the benefits arising from the training. These data can be collected over a period of time or at a point in time (e.g. time series data, matched-pairs data on behaviour or performance).

Performance measures - For example, in evaluating a training program for train drivers, performance measures used included fuel usage, time taken to drive a train, and train handling.

Training measures - These include direct measures, like actual dollars spent in setting up the training program, and use of dummy variables as proxies for where the training occurred.

Direct and indirect training costs - Data on the costs associated with training are used to work out the impact of training on profits. Direct costs may include production and supply of learning materials, travel costs, accommodation costs, administrative costs, software, costs for training delivery, and costs of trainee wages and salaries. Indirect costs include opportunity costs of time and foregone output.

Benefits - Benefits may include additional sales revenue, improved productivity, reduced costs, reduced staff turnover, reduced WorkCover premiums, and reduced equipment downtime.

Step 2—Comparing pre- and post-training performance/behaviour

The data that is collected in step 1 is then used to compare the pre-training program performance with the post-training program performance. The tests used to test for significance relate to whether or not the exact distribution of the variables involved in the test is known. Where this distribution is known, we can use parametric tests; where this distribution is not known, we can use non-parametric tests.

Step 3—Exploring the impact of other interventions on changes in performance or behaviour through multivariate analysis techniques

This type of analysis tries to take into account the multi-dimensional influences on any dependent variable. Multivariate analysis also helps evaluators to decide which variable among a set of explanatory or independent variables has the most effect on the dependent variable. It also helps evaluators to determine the extent of each variable's impact on the dependent variable.

This analysis and step in the ROI process is highly recommended by Doucouliagos and Sgro; however, they note that it is sometimes difficult to obtain all the necessary data required to make the analysis a meaningful one. As well as difficulties in accessing the necessary data on certain explanatory variables, it is also important to understand that some of the variables may also be difficult to measure.

Step 4—Calculating the ROI

Cost–benefit analysis

The aim of the cost–benefit analysis is to assign a monetary value to the costs and benefits of the training program and to arrive at a cost–benefit ratio. The cost–benefit ratio can also be an estimate of the impact of a particular training event. The degree to which it is an estimate of returns depends on the quality of the data that are used to calculate this ratio.

Source: Doucouliagos and Sgro (2000)

ANNEX 5 – EVALUATIONS OF WORKPLACE LLN TRAINING

A5.1. Introduction

This chapter presents summaries of workplace literacy evaluations studies in Australia, New Zealand, Canada, United Kingdom, United States and a selection from other locations. In spite of the sizeable number of workplace schemes now available, very little evidence bears directly on how basic skills training impacts on any employer outcomes (Ananadiou, Jenkins and Wolf, 2003). While there is information at the macro level that establishes associations between variables such as literacy skills and income, there are very few evaluations on an initiative, program or company level that attempt to link benefits or outcomes directly to a particular intervention (Gray (2006).

According to Benseman and Sutton (2007), both the quantity and quality of LLN research have made great progress over recent years, due largely to the research programs of the National Research and Development Centre (NRDC) in England and the US-based National Centre for the Study of Adult Literacy and Learning (NCSALL). More recently, work undertaken by the Workbase centre in New Zealand, Skillnets in Ireland and Centre for Literacy in Canada have taken considerable steps towards improving the evidence base. Despite this progress, the field still lacks the funding, and subsequently the depth and quantity, of research studies that most other educational sectors have achieved.

There are four landmark evaluations in the area of workplace literacy evaluation which are worth mentioning by name because of their significant contribution to the field:

1. **New Zealand** - Department of Labour. (2010). *Upskilling Partnership Program - evaluation report*. Wellington: Department of Labour.
2. **Canada** - Palameta, B. *et al.* (2013). *Meeting Expectations: Measuring the Impacts of Workplace Essential Skills Training Final Report of Measures of Success*, The Centre for Literacy, Montreal.
3. **Canada** - Gyarmati *et al.* (2014). *UPSKILL: A Credible Test of Workplace Literacy and Essential Skills Training*. Toronto: Social Research and Demonstration Corporation
4. **United Kingdom** - Wolf, A., & Evans, K. (2011). *Improving literacy at work*. Abingdon Oxon: Routledge (Skills for Life)
5. **Australia** - Pearson, Geoff (1996) *"More than money can say: The impact of ESL and literacy training in the Australian workplace."* Canberra, Department of Employment, Education, Training and Youth Affairs

The implementation of general training measurement models requires a significant financial investment and commitment, especially from senior managers (Moy, 2001). Some conducted solely by researchers, collaborations between researchers and enterprises (usually involving large enterprises with human resource functions). This may raise questions of how current models advocated in literature are not relevant or appropriate to the needs and priorities of small- and medium-sized enterprises (SMEs).

A5.2. Australia

Employer consultations in Australia reveal that low literacy and numeracy skills lead to a variety of problems in the workplace, and each problem may require a unique intervention strategy which is expected to lead to particular efficiencies. These issues, solutions and outcomes are summarised in the table below (Taylor, 2011).

Table A5.1 Issues, solutions and outcomes

Literacy/numeracy Issue	Return on investment	Category
Communication breakdown with customers and colleagues	Reduced supervisor intervention in interpreting communications Reduced workload for colleagues and supervisors by less customer phone enquiries	Productivity Customer satisfaction
Numeracy issues, such as:	Improved quality of product	Quality
✧ incorrect calculations of amounts/volumes/yields	Reduced supervisor time checking calculations	Productivity
✧ problems interpreting mathematical language and symbols	Reduced workload not taking on extra duties	Compliance
✧ problems with stocktake calculations		
Limited reading/writing skills	Reduced need for other colleagues to assist in writing 'toolbox' meeting reports Greater opportunities to grow in job role Increased promotional opportunities Reduced supervisor time for instructions	Productivity Compliance Expanding job roles

Pearson (1996) summarised the state of workplace LLN research and evaluation in 1996:

'Although a great deal of research and evaluation of the impact of workplace language and literacy training programs has occurred in the past, it has generally been focused on qualitative analysis of such programs. Training provider evaluation has usually centred on what participants have achieved within the training room. When evaluation has moved beyond the training room to the workplace itself, most of the evidence has been anecdotal.'

Hartley and Horne (2011) observe that "assessing the social and economic benefits of investing in adult literacy and numeracy and the costs of poor adult literacy and numeracy is largely uncharted territory in Australia." Woods *et al* (2006) suggest that studies in Australia have found the following elements to be crucial to the development of effective language and literacy training:

- a culture which amplifies the value of training and learning ;
- quality partnerships and consultation with all stakeholders (McGuirk *et al*, 2001)
- flexibility in attitudes, models of training and working conditions (McGuirk *et al*, 2001),
- experience in delivering workplace training and familiarity with competency based
- curriculum and training packages
- qualified trainers and experienced literacy and numeracy teachers (McGuirk *et al*, 2001)
- coaching and mentoring (Wakefield & Pearson, 1997)
- a long-term investment in training (McGuirk *et al*, 2001)
- ongoing evaluation of training (Wakefield & Pearson, 1997).

Beyond the individual enterprise, authors such as Billett (1998), Davidson *et al.* (1997), Billett and Cooper (1997) and Catts *et al.* (1996) indicate that establishing a body of Australian evidence demonstrating the returns to enterprises may encourage increased enterprise investment in training and also assist in evaluating public policy on training (Moy, 2001).

Moy and McDonald (2000) identify over 50 possible training outcome indicators, presented in seven clusters: productivity and efficiency; sales and profitability; quality of products and services; customer service and satisfaction; occupational health and safety; organisational learning and development; and organisational climate, culture and practices. The draft taxonomy was piloted and validated during 1998–99 with six enterprises as part of the development of the practitioner guide.

Miltneyi's (1989) *English in the Workplace: A Shrewd Economic Investment*, examined English in the Workplace programs at State Rail, Westpac, the Hilton, and James Hardie Industries. The study found that 97% of course participants believed their productivity had increased following the courses (based on better communications, fewer mistakes, less need for repeated explanations, and reductions in workplace tensions). These also pointed to more flexible deployment of staff, enlargement of the promotional pool, time savings in interactions with employees from non-English speaking backgrounds, and reduced product wastage, as benefits flowing directly from the courses (Mitneyi, 1989).

In 2000-01, the Australian National Training Authority (ANTA) funded a number of studies as part of the project, *Enterprise return on a training investment in the Australian context* (Smith, 2001). These studies were commissioned to investigate methodological approaches that could be used to demonstrate returns to Australian enterprises from investment in training. Unfortunately, the prioritisation of workplace training evaluation of any kind has not achieved the same level of visibility in the years since in Australia – empirical studies of LLN programs are particularly scarce.

A. Pearson (1996) *More than money can say*, Department of Education, Employment, Training and Youth Affairs

One of the most widely quoted Australian studies in the field is Pearson's 1996 report on 30 workplaces and 500 individual respondents, *More than Money Can Say, The impact of ESL and literacy training in the Australian workplace*. It found that language and literacy training was considered to have had a positive effect on five aspects of the workplace:

- direct cost savings
- access to and acceptability of further training
- participation in teams and meetings
- promotion and job flexibility
- the value of training (which included issues such as worker morale and confidence to communicate).

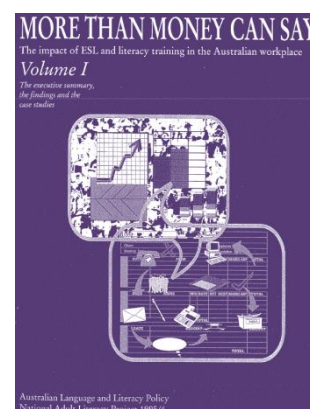


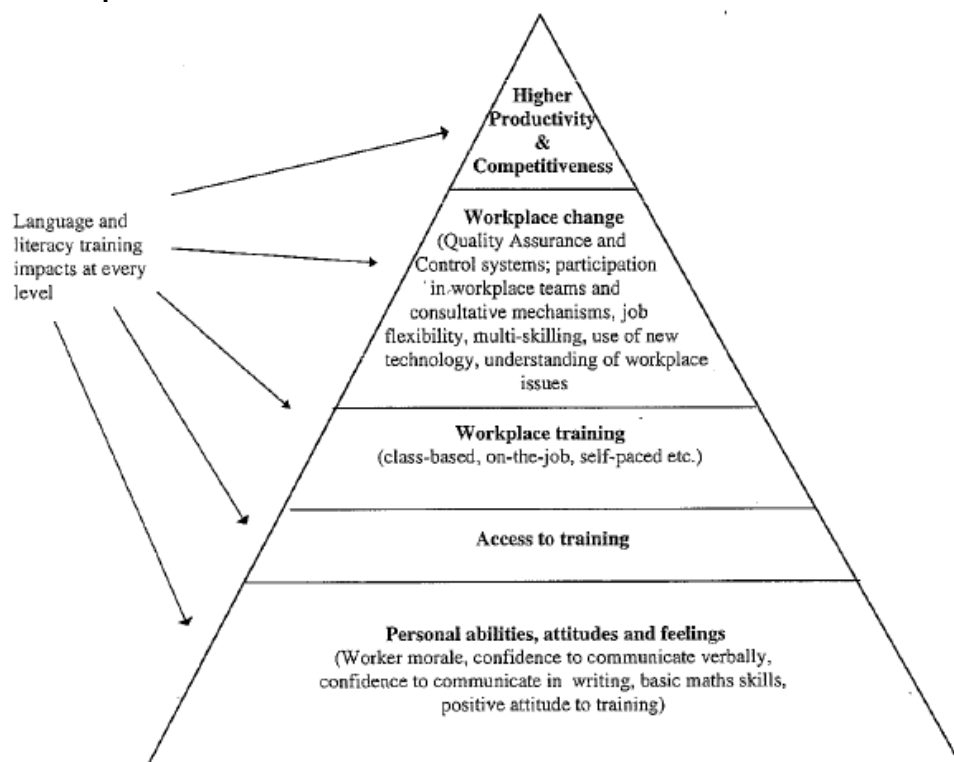
Table A5.2 provides a more detailed description of each category - 'direct cost savings' and 'the value of training' being the most relevant to the current study.

Table A5.2 Impact evaluation instruments in Pearson (1996)

Instrument	Description
Direct cost-savings	This instrument focuses on the nature and degree of savings in the workplace which can be linked to the outcomes of the program. The instrument also includes requests for estimations of specific savings that occurred in amount of time and/or money per day or week.
Access to and acceptability of further training	This instrument collects statistical information about subsequent training achievements and training success rates of program participants. The instrument also collects information on program participants' ability to identify and apply for further training and the changes that have occurred from participation in further training.
Participation in teams and meetings	This instrument extractions information on the perceived information in various aspects of team and meeting participation. The instrument also requests the value of specific gains from team suggestions that have occurred after the training program.
Promotion and job flexibility	The promotion component of the instrument collects statistics on the incidence of applications for internal promotions from program participants after the completion of the program. The promotion component also collects information on changes to the value that the workplace places on internal promotions. The job flexibility component of the instrument focuses on the estimation of improvements in the flexibility of workers to undertake workplace tasks that have a literacy component.
The value of training survey	This instrument focuses on the personal and interpersonal gains of program participants from the training. Such gains include improvements to participants' morale, confidence to communication and attitude to training.

Source: Pearson *et al* (1996)

Figure A5.1 shows the areas of impact of LLN training as defined by the study.

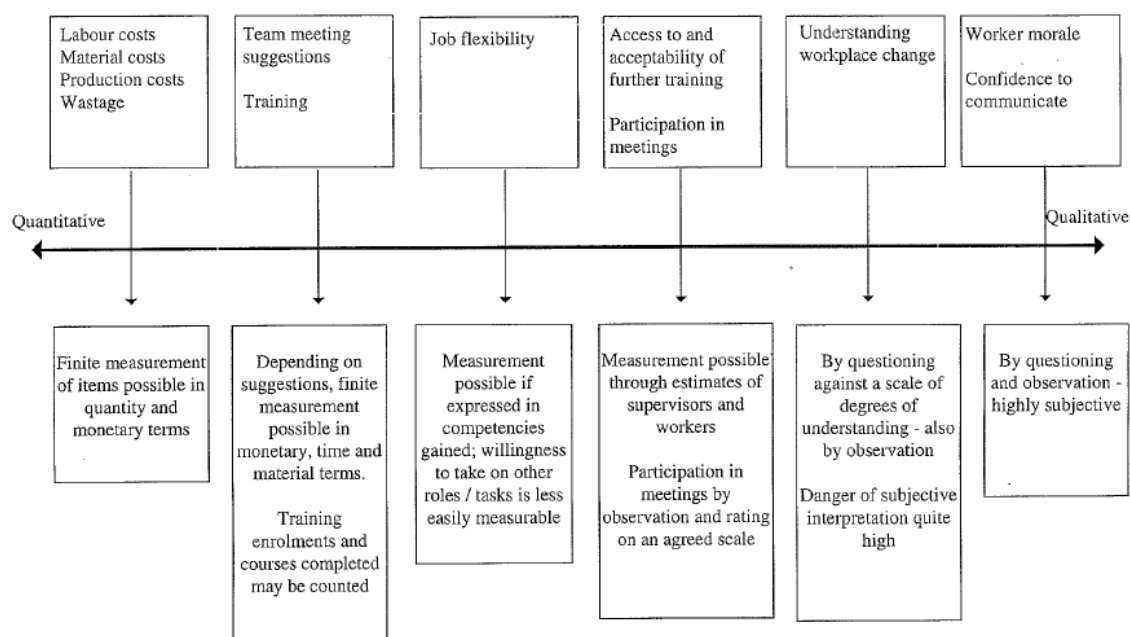
Figure A5.1 The relationship between language and literacy training and economic competitiveness

Source: Pearson *et al* (1996)

Each impact evaluation instrument involves several surveys to be completed by either program participants, supervisors, managers or other workplace personnel. The instruments are implemented in a quasi-experimental research design whereby data is collected before and after training to assess improvements and changes resulting from the program. Most instruments involve self-reporting from

participants and ratings and estimates from supervisors and managers. Although mostly qualitative in nature, Pearson *et al* (1996) were able to quantify the findings to report on the social and economic benefits of workplace literacy and numeracy programs.

Figure A5.2 A value measurement continuum



After developing the instruments, Pearson *et al* (1996) administered them to 500 participants from Australian workplaces that were involved in WELL or the Food Industry Language and Literacy Initiative Program (FILLIP). The sample covered five states and 13 industries. The statistics derived from the instruments provided evidence of the degree of improvement at the workplace and individual level and is one of few known attempts to quantify the value of work-based literacy and numeracy training. The main difficulty encountered in the administration of the instruments was that not all workplaces collected the information required for some instruments. It was also reported that the value of training survey was the only instrument with responses from all workplaces. The response rates for the four other instruments ranged from 33 per cent to 66 per cent.

Despite minimal reporting of flow-on effects, Pearson *et al* (1996) suggest that the benefits reported from participants involved in WELL funded training automatically flow-on to benefit other facets of participants' lives as well as the Australian economy:

"What the case studies also serve to underline is the enormous benefit that necessarily accrues to the nation as a by-product of the development of individuals' skills to communicate and train. When an individual becomes able to access further training, or to take on different roles, or to participate more fully in the life of the workplace, there is an obvious corollary that not just the workplace and the economy but also the individual in general, have benefited" (Pearson *et al*, 1996, p. 122).

The direct cost savings instrument

The instrument was completed by 53 respondents (24 managers and 29 supervisors) in 16 of the 24 workplaces.

Respondents were asked for a quantitative estimate of savings. On average, 70% of respondents considered that their organisation had made perceptible cost savings as a result of language and literacy training at the workplace. The nature of these savings varied by organization, but the most consistently identified ones were related to time saving (both of supervisor and worker time) when carrying out language or literacy work tasks. The other type of saving most frequently mentioned was related to more accurate and fuller completion of workplace documentation. The amount of savings also

varied among organisations; however, the estimated savings on 'unproductive' labour costs per participant per week for each skill surveyed were: A\$9–A\$77 per training participant per week (average range) or A\$16–A\$28 per training participant per week (median range).

Figure A5.3 Direct cost-savings survey instrument – General impressions

Question 1 - General impressions

On the table below, can you please indicate:

- under **Before the training**, how you felt about the ability of the training participants' in general to perform each of the items **before the training**. Please use this scale:

N = not satisfactory; S = satisfactory, H = highly satisfactory

- the general savings to your company that you feel have occurred as a result of the participants' improved numeracy or writing skills after the training program (Please **tick only one box** in each row)

	Before the training	great savings	some savings	minor savings	no savings	losses
General						
understanding written work / job orders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
understanding written messages	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
understanding written instructions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
reading plans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
completing workplace documents generally	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
reporting problems in writing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
completing QC documentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
writing short messages	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
writing minutes of meetings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
understanding verbal instructions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
communicating clearly with other team / crew members	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
using a calculator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
calculating quantities accurately	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
calculating volumes of materials needed for a job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Source: Pearson *et al* 1996

Figure A5.4 Direct cost-savings survey instrument – Specific savings**Question 2 - Specific savings**

On the table below, can you identify any specific savings that have been reported as a result of improvements in these participants' language, literacy and numeracy skills .

In the first box, please indicate the nature of the saving, e.g. "no longer use interpreters"; and **in the second box** the amount of time and / or money per day / week which has been saved as a result. (Please indicate clearly in the box whether the figure refers to time or money, and over what time period.)

If any items are irrelevant to your particular situation, please write 'N/A' in the appropriate places.

	Nature of the saving	Amount of saving (see note above)
General		
understanding written work / job orders		
understanding written messages		
understanding written instruction		
reading plans		
completing workplace documents generally		
reporting problems in writing		
completing QC documentation		
writing short messages		
writing minutes of meetings		
understanding verbal instructions		
communicating clearly with other team / crew members		
using a calculator		
calculating quantities accurately		
calculating volumes of materials needed for a job		

Question 3 - Statistical evidence

Where in the workplace might there be some **statistical evidence to support the answers** given at questions 1 and 2?

Source: Pearson *et al* 1996

The study produced four 'value of training' survey instruments tailored to specific audiences: participants; supervisors and team leaders; management, training and HR; and union representatives (see Figures A5.5-A5.6).

Figure A5.5 Participants 'Value of Training' survey instrument (in Pearson, 1996)

1a. In the first column, how did you feel about each item before the language and literacy training program was conducted in your workplace. Use this scale:

N = not good, OK = OK, V = Very good.

1b. How much do you think these things have now changed for you because of the language and literacy training conducted in your workplace? (Please tick ONE BOX ONLY in each row):

Before the training	I feel very much better	I feel quite a lot better	I feel a little bit better	No change	I feel worse than before
general feelings about my work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
confidence to talk to others at work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
confidence to do writing for my work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
relationship with management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
feelings about training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
participation in training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
participation in meetings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
understanding of changes in my workplace	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you would like to make any other comments about the value of the language and literacy training, please use this space.

2a. Look at the table below. For each item, can you choose from these answers and write the number in the correct box.

1 - I did this already before the course
2 - I didn't do this before the course but now I do
3 - I still don't do this
4 - This is not a part of my job

Communication skill	Answer	Time spent each day / shift before the training	Time spent now
complete my own job documents		minutes	minutes
read job instructions for my work		minutes	minutes
speak to members of management		minutes	minutes
speak at my team meetings		minutes	minutes
report problems to my supervisor / team leader		minutes	minutes
write messages for other people at work		minutes	minutes
use the telephone / two-way radio		minutes	minutes
fill out my own workplace forms		minutes	minutes
use a calculator		minutes	minutes

2b. Now, look at all your answers again.

Can you estimate how much time each day / shift you used to spend on each thing before the training, and how much you spend now?

Source: Pearson *et al* 1996

Figure A5.6 Supervisors and team leaders 'Value of Training' survey instrument (in Pearson, 1996)

1. In the first column, please indicate how you would have rated each item before the language and literacy training program was conducted in your workplace. Use this scale:

U = Unsatisfactory, S = Satisfactory, E = Excellent.

Then indicate what effect the language-and-literacy training has had on each item. (Please tick ONE BOX ONLY in each row):

Before the training	Enormous gains	Some significant gains	Some minor gains	No change	Negative effect
worker morale	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
worker confidence to communicate verbally	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
worker confidence to communicate in writing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
'shopfloor' / management relations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
worker loyalty to organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
worker attitude to training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
worker involvement in training	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
creation of training climate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
worker participation in meetings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
worker understanding of demands of workplace change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Please think about your most competent shopfloor worker who has comparable duties and responsibilities to the training participants. On a typical day / shift, how much time (in minutes) would you estimate he/she spends on each of the following?

	ESTIMATED TIME SPENT EACH DAY / SHIFT
Completing documentation (worksheets, QC charts etc.)	minutes
Checking documentation (job sheets, manuals, SOPs, schedules etc.)	minutes
Clarifying written instructions	minutes
Clarifying verbal instructions	minutes
TOTAL	minutes
Most competent worker's hourly rate of pay	\$

3. Using your estimates at Question 2 as your benchmark, can you please indicate on the table below the additional time (in minutes per shift / day) you estimate was spent by each person in communication before and after the training program. Please indicate also the rate of pay for each person indicated.

	Additional time* per shift / day spent in communication before the program	Additional time* per shift / day spent in communication after the program	Hourly Pay Rate \$
The participant who most benefitted from the training in your opinion	minutes	minutes	\$
The participant who least benefitted from the training in your opinion	minutes	minutes	\$
The average participant in your opinion	minutes	minutes	\$
Total supervisor's time spent with workers on:	minutes	minutes	\$

* additional time means time spent in communication over and above that needed by the competent shopfloor worker you described at Question 2

Source: Pearson *et al* 1996

Pearson (1996) describes the limitations of the exclusively quantitative approach to evaluation in this context:

'It has also been possible to estimate a range of labour cost savings to the 16 workplaces in this part of the study. However, to be more precise than this would be to move too dangerously into the realm of supposition.'

The many comments which respondents made on the measuring instrument forms also underline that such quantitative measurements alone are in fact not an adequate enough measure. For each skill applied in the course a person's work, there are other gains which benefit everyone – gains in terms of better organisation, a clearer sense of direction and purpose, a sense of momentum and dynamism replace a sense of inertia, and an increase in morale which is vital to a healthy, productive and efficient workplace. These things are so nebulous that they can all too easily get brushed aside or overlooked. Yet their ramifications have much more impact on the daily life and organisation of a workplace than a simple measure of time or money saved could ever hope to describe'.

Pearson also provides 'a note on quantifying':

It was never the aim of the project to come up with an equation along the lines of:

X hours of training x Y number of trainees = Z dollars of increased productivity

Apart from the enormous difficulty there would have been in attempting to establish such an equation which could reliably reduce all the variables to one figure, the answer it gave could never hope to describe the broad range of impact points which the research team felt certain they would find.

From the outset, therefore, it was the intention of the research team to identify the key areas in which language and literacy played a significant role in improving the workplace and to describe the impact on each, using as much supporting empirical evidence as could be unearthed. This approach seemed eminently more likely to yield useful results for our two key audiences: industry personnel and training providers.

Table 5.3 provides a summary of estimated benefits and savings from seven workplaces.

Table A5.3 Details of the estimated benefits and savings in seven workplaces in Pearson *et al.* (1996)

Workplace details		Workplace literacy and numeracy training		Estimates of cost savings or dollar benefits	
Workforce profile	Key influences	The participants	The program	Nature of saving or benefit	Estimated amount of savings or benefit
- Private sector - Large size (220 employees) - Manufacturing (pharmaceuticals) industry - Metropolitan area, NSW	- Workforce restructuring - New manufacturing processes - Quality assurance	- 19 participants - Mostly NESB - Mostly female	- 100 plus hours - Undertaken in 1993	- Positions no longer needed - 10 jobs saved - Productivity savings due to improved understanding of written orders - Productivity savings due to accurate calculation and entering of quantities	- Salary savings of \$40 000 per annum - Avoided \$250 000 in redundancy payments - Savings of 4-5 hours per day or \$300 per week in unproductive labour - Savings of 12 hours per day or \$800 per week in unproductive labour
- Private sector - Medium size (72 employees) - Health and community services industry - Metropolitan area, Vic	- Loss of government funding - Introduction of teams - Multi-skilling	- 11 participants - Mostly NESB - Mostly female	- 41 to 80 hours - Undertaken in 1994	- Increased funding obtained - Productivity savings due to reduced translating	- Over \$50 000 per annum - Savings of at least 2 hours of a manager's time per week
- Private sector - Large size (114 employees) - Manufacturing (printing) industry - Metropolitan area, WA	- Workforce restructuring - Introduction of teams - Introduction of technology	- 32 participants - Equal mix ESB and NESB - Mostly male	- 40 to 80 hours - Conducted in 1995	- Productivity savings due to one worker's improved vocabulary and ability to decipher handwriting	- Increased productivity by 2% on one machine
- Private sector - Large size (545 employees) - Construction industry - Metropolitan area, NSW	- Need for industry wide approach to training - Award restructuring and multi-skilling - Safety	- 20 participants - Equal mix of ESB and NESB - Mostly male	- 40 or less hours - Conducted from 1993 to 1995	- Cost/benefit analysis of the training - Recovered costs on a crane due to use of new technology enabling accurate record keeping - Productivity savings due to improved writing skills and efficiency of document completion - Recovered costs on forklift work due to accurate computer record keeping	- Benefit of \$4.75million derived from cost benefit analysis - \$60 000 in recovered - Savings of \$64 500 in unproductive labour - \$10 000 in recovered costs
- Private sector - Small size (26 employees) - Manufacturing (food) industry - Metropolitan area, SA	- Seeking quality accreditation - Introduction of work team culture	- 5 participants - Mostly NESB - Mostly female	- 66 hours - Undertaken from 1994 to 1995	- Productivity savings due to improved understanding of verbal instructions	- Savings of 3 worker hours per week or \$4 900 per annum in unproductive labour
- Private sector - Large size (116 employees) - Manufacturing industry	- Workforce restructuring - Introduction of TQM system	- 20 participants - Mostly NESB - Mostly male	- 80 to 100 hours - Undertaken in 1995	- Reduced down time due to improved work processes - Reduced maintenance costs	- \$82 808 per annum saved - \$10 067 per annum
- Private sector - Large size (550 employees) - Manufacturing (food) industry - Metropolitan and non-metropolitan, 5 states	- Quality assurance systems - Introduction of committees and work teams	- 20 participants - Mostly ESB - Mostly male	- 41 to 80 hours - Undertaken in 1994	- Productivity savings due to improvement in several skills (for example, communication skills)	- \$21 700 saved per annum in unproductive labour
				- Less materials wastage that results from putting incorrect quantities of flour into bags	- \$4 660 per annum reduction in floor giveaways

Source: Pearson *et al* 1996

One case cited in Pearson (1996) does compare the costs of training to the dollar value in benefits. However minimal details on the methodology of this analysis were reported. The nature of these savings varied by organisation but the most consistently identified was time saved by supervisors and workers when carrying out language or literacy tasks. Another frequently mentioned benefit was more accurate and fuller completion of workplace documentation.

Wakefield and Pearson (1997)

In another study Wakefield and Pearson (1997) found that across seven workplaces there were nearly \$32, 500 savings in wastage (such as money, time, resources and materials) fully attributable to WELL funded training and just over \$18,000 of savings in wastage that were partly attributable to WELL funded training. There were other changes noted such as greater emphasis on quality.

The study notes the difficulties of measuring the impact of training on the workplace. Nevertheless, Pearson was able to identify and quantify direct costs savings accruing from language and literacy inclusive training in several workplaces.

Wakefield and Pearson (1997) subsequently trialled the instruments in six states on 50 participants from 20 workplaces involved in WELL programs. Each workplace was asked to trial at least one of the five instruments. Similarly to Pearson *et al* (1996), the researchers report that the personal and interpersonal factors instrument (previously known as the value of training survey) had the highest number of responses.

Through analyses of pre-training and post-training views of the instruments and overall ratings of the instruments, the researchers suggest that the instruments were successfully implemented and considered of value and relevance. The main reporting burden identified related to the time taken to coordinate people and ensure that all information is gathered. Their recommendations for improvement of the instrument were related to simplification and shortening of the instruments. On the proviso that these modifications were made, Wakefield and Pearson (1997) recommended that the WELL program adopt the instruments as part of the WELL reporting mechanism. Despite such recommendations, the present literature search did not identify the actual use of the impact evaluation instruments in other research on work-based literacy and numeracy programs.

In summary, of the seven worksites that used the direct cost savings instrument, a total of \$32 000 savings in reduction in wastage was directly attributed to the work-based training. A further \$18 000 was attributed in part to the work-based training.

Table A5.4 Estimation of savings from the reduction of wastage in seven workplaces in Wakefield and Pearson (1997)

Workplace details Location	WELL program participant details		Annual wastage reduction	
	Number of trainees in WELL program	Number of trainees covered by the direct cost savings instrument	Solely attributed to the WELL program	Partly attributed to the WELL program
NSW	20	20	\$7 084	\$4 312
NSW	22	6	\$4 356	(b)
NSW	7	7	\$9 146	\$2 904
Vic.	11	4	(b)	\$689
SA	12	11	\$8 580	\$8 580
WA	1	1	(b)	\$1 711
WA	6	4	\$3 300	(b)
Total	79	53	\$32 468	\$18 197

(a) The only other information reported about the workplaces was that they represented industries of building supplies, cement manufacturing, food, light manufacturing, local government, mining and retail.

(b) Not reported by the workplace

Source: Wakefield and Pearson (1997)

B. Doucouliagos and Sgro (2000) *Enterprise return on a training investment*, NCVER

In a later Australian study, Doucouliagos and Sgro (2000) of Deakin University designed an integrated approach to evaluating ROI in training. Building on earlier work that they undertook for the Victorian Office of Training and Further Education, Doucouliagos and Sgro carried out in-depth investigations of the returns to training investments in eight firms. Focussing on particular training programs in each of the firms studied, they calculated both the cost–benefit ratios for training and the final returns on training investments experienced by the firms.

This approach considers the multi-dimensionality of the influences on training outcomes. In doing so, they integrated various methods for calculating the ROI on training. Their model comprises four major steps. The first step comprises the data collection stage, and identifies the various types of data that may be collected to provide information for the ROI on training analysis. The second step deals with a pre-and post-training approach. The third step provides information of multivariate analysis techniques. The fourth step deals with the cost–benefit analysis that is undertaken. It also explores the use of other types of advanced statistical techniques.

Table A5.5 Doucouliagos and Sgro Evaluation process

Step	Description of process
step 1: data collection	<p>The obvious first step in the evaluation process is the collection of data. Without adequate data, evaluation is not possible. The data needed depend on the training program and, especially, what the outcomes of the training are meant to be. Data are needed on the following four categories:</p> <ul style="list-style-type: none"> • a measure of performance • a measure of the training • the costs of training • the benefits arising from training <p>For most organisations the major difficulty in the data collection process will be the collection of benefits data and the measurement of benefits. Where some of the appropriate data are not available, the evaluation process is necessarily restricted. The costs of training are usually well known and easily identified. This is not so for benefits. Often, it may be necessary to seek the co-operation of areas other than the training function within the organisation for data on benefits, and often, some of the benefits cannot be quantified.</p>
step 2: pre- and post-training	<p>Once the data is collected, the next step in the evaluation process is to compare pre-training performance and/or behaviour to post-training performance/ behaviour. Evaluation here involves investigation of the following:</p> <ul style="list-style-type: none"> • the direction of change in the target performance measure or behaviour • the magnitude of the change • the statistical significance of the change • the economic significance of the change
step 3: multivariate analysis	<p>At the multivariate analysis stage, evaluation involves exploring the extent to which interventions other than training contribute to changes in behaviour and performance. This is an important step, as it helps to determine the extent to which training on its own has had an impact. This step is not always possible because the necessary data is unavailable. It is, however, highly recommended.</p>
step 4: calculate ROI	<p>The final step is to compare the costs of the training to the benefits derived from the training. This comparison is usually expressed as a cost–benefit ratio (CB) and ROI. The analysis at this step can be undertaken at a single point in time or over a number of time periods. In the latter case, this can involve Net Present Value and Discounted Cash Flow analysis.</p>

Source: Doucouliagos and Sgro (2000)

The results show that the returns to training can be very high indeed, with some firms experiencing returns of up to 5000 per cent on their expenditures over time. They also point out that returns to training can come in many forms. Amongst the firms that they studied, Doucouliagos and Sgro show that returns come not only in the form of productivity increases, as assumed in the economics literature, but also in terms of lower employee turnover and reduced recruitment costs or lower WorkCover premiums for a decrease in work-related accidents.

Doucouliagos and Sgro developed and tested an evaluation instrument for use by enterprises to assist them to evaluate (both financially and non-financially) their training investment decisions. This evaluation instrument uses a wide variety of statistical techniques dependant on the quantity and quality of the data available.

Table A5.6 Case study organisations, industry grouping, employment and training outcomes

Case study organisation	Industry	Employment	Positive impact of training on	Estimated ROI %
Australia-New Zealand Direct Line (ANZDL)	Transportation – freight	300	Goal-setting, time management	323
Franklins	Retail	27,900	Costs of induction	1000
Huntsmen Chemicals	Manufacturing	400	Safety and WorkCover premiums	1,277
Kodak Australasia	Manufacturing	2,000	Productivity	256
Mission Australia	Charity	2,200	Staff turnover	7,125
QR (Queensland Rail)	Transportation – rail	14,800	Fuel usage, time and train handling	30
Target Australia	Retail	23,000	Sales and staff turnover	980

Source: Doucouliagos and Sgro in Smith, 2001

The respective rates of return are not comparable as the firms are not operating in the same industry or different training programs are being evaluated. They are presented as a summary rather than for comparison purposes. Also note that the ROI figures are lower bound estimates, as all the costs could be identified but not all the benefits. In addition, the range and timing of benefits varied from program to program, making comparison of rates of return infeasible.

It should be noted, also, that an ROI of 50 per cent for a company may be of more economic and strategic importance than an ROI of 300 per cent for another company. The fact that ROI was positive and significant for all seven case studies does not mean that training will always have positive returns. Nor does it mean that all training programs for these organisations have generated positive returns. However, it does indicate that a well-designed and delivered training program can be expected to generate significant returns and is likely to compare favourably with other forms of investment.

The two main forms of data used are time series and matched pairs, pre- and post-training. Additionally, both subjective and objective data are used in a number of the case studies, illustrating the diversity of data sources available to organisations and the use to which such data can be put. The evaluation covers a range of projects and a range of trainees, from operators to managers.

C. OTFE²⁸ (1997) (aka Davidson *et al.*) *Return on Training Investment, Development of Enterprise Frameworks*

In a landmark Australian study, *Return on Training Investment: Development of Enterprise Frameworks*, Davidson *et al* (1997) develop a typology to explain the different levels of sophistication of training evaluation: budget evaluation, skills evaluation, project evaluation and strategic evaluation. The study links these four stages to a set of six 'evaluation techniques':

²⁸ Also cited as Davidson, J. and C. Doucouliagos, J. Macneil, M. Rimmer, P. Sgro, L. Watts

- Budgeted targets
- Subjective analysis after training
- Competencies gained
- Competencies applied
- Quantitative analysis of training on organizational performance
- Strategic evaluation

Davidson *et al.* (1997) provide a useful reflection on the importance of evaluation to employers: '*each enterprise should decide the importance of training evaluation and the level of resources to be devoted to the data collection and training evaluation processes*'. The case study results within show internal rates of return ranging from 35% to 150%.

D. DTEC NSW (1997) (aka Marcroft, 1997), *Relationships between training and productivity*, DTEC NSW, Sydney

Similar findings are evident in DTEC (1997), which found that the returns, or benefits, of most interest to enterprises were: employee perceptions; informal observation of employee performance; impact on customer service; impact on quality assurance statistics; impact on occupational health and safety statistics; review (rather than measurement) of training to evaluate the contribution to business performance indicators.

E. Catts 1996

The approach adopted in the present study is more conservative. It is argued that the critical question is whether owners of small enterprises are convinced that benefits of training can be inferred from the evidence. Therefore a linked analysis has been developed which uses the four levels of evidence proposed by Kirkpatrick. Once it is confirmed that training has occurred evidence is collected about staff responses to the training (level one), the competencies achieved (level two) evidence that the skills are used and maintained (level three) and evidence of effects on business performance (level four). **It is concluded that only where there is evidence that each step in this link is confirmed can the link between training and business performance be claimed.**

In order to conduct this study it was necessary to develop protocols to collect information about customer service, about the outcomes of training, and about business statistics. In accordance with the four levels of evaluation postulated by Kirkpatrick and cited by subsequent writers (see Pine and Tingley, 1993) staff perceptions about training (level one) were collected by interview and through the use of a self-report instrument, competencies obtained (level two) were to be obtained through a comparison of RPL outcomes and post - training competency based assessment conducted by the training provider, and staff use of new skills (level three) was to be measured both through direct observation and through the use of a customer perception survey. The Return on Investment (level four) was addressed through the collection of business statistics held by the firm and as reported by the owner.

Before considering measures of staff use of new skills (level three), comment on the measure of level four outcomes is appropriate. For the findings to be of use to other small firms it was decided that business statistics should be restricted to those normally held by a firm as part of their legal and basic accounting procedures. Therefore measures were sought of staff turnover, absenteeism, gross sales and salary as a percent of gross sales. The last of these figures was seen by the research team to be the most direct measure of productivity.

The research reported was conducted in firms with on -going business concerns and the training had to occur at times and in a manner appropriate to the business and personal priorities of the owners and staff concerned.

F. Misko, 1996

This study aimed to gather information on the costs and benefits of work-based training for small, medium and large enterprises and for the individual undertaking training. Data were collected using questionnaire survey, telephone and in-person interviews, visits to companies and company documents.

Where large and medium-sized companies were more likely to train employees in paid company work-time, small companies were more likely to have employees organise for their own training in their own

time. Most medium and large companies reported keeping financial records on work-based training; only a small number of small companies reported doing so.

Almost two-thirds of the companies providing formal work-based training provided information of costs as a percentage of gross salary budgets. Just under half of these companies reported spending between one and 2.5 per cent of their gross salary budgets on training. Another quarter reported spending between three and 4.5 per cent. There were very few companies reporting expenditures over these amounts. Very few companies provided any information on training expenditure per employee. Many of the case study companies did not keep records for costing training.

Seventy-five per cent of the companies in this study did not have formal procedures in place for evaluating training. Reasons for this may be related to the difficulty of ascribing any change directly to training, and the cost in terms of time and money to mount a formal evaluation program. This does not mean however that some less formal evaluation procedures were not undertaken. Many companies reported judging the effectiveness of their training programs through identifying improvements in work performance and feedback from internal and external clients.

Most companies were also prepared to identify the benefits training provided to the enterprise. Those most frequently identified included improved productivity, knowledge, improved employee morale and job satisfaction, and improved quality, cost-efficiency and cost-effectiveness. Other commonly identified benefits were those relating to improved client relations and the development of skills which were specific to the organisation. These benefits detailed by companies appear to be focussed on providing outcomes closely related to quality improvement.

This study examined the actual and perceived costs and benefits of work-based training to various stakeholder groups. In this study, costs include production costs (materials development, staff training), the costs of conducting training (including materials, trainee wages), program evaluation costs, opportunity costs (costs of foregone hourly wage) and other direct and indirect costs.

Examples of benefits that may accrue to the enterprise include improved quality and reduced turnover. Examples of benefits that may accrue to individuals include increased skills, portability of qualifications and over-award payments. Examples of benefits that may accrue to governments include reduced capital expenditure for facilities or equipment.

This study shows that it is difficult to obtain information on what companies spend on training. It also shows that the majority of companies do not calculate training expenditure per employee. Moreover, where companies do maintain such financial records the majority were not prepared to provide information on these costs, or the costs of work-based and other forms of training were not differentiated. As a result, it has been difficult to determine from the survey data or the case studies on what is actually being spent on work-based training.

G. Billett 1994 – Queensland case studies

The study was conducted by the Queensland Training Officers Society (QTOS)²⁹ for the Office of Vocational Education, Training and Employment Commission (VETEC). A key finding in seven case studies undertaken within large enterprises in Queensland is that it is medium term strategic goals, rather than profits, that are sought by such enterprises to justify expenditure of training. It was found that the focus of training is closely linked to key strategic goals and that non goal-focused training is unlikely to receive funding. In each case study, no formal mechanisms were in place to equate training expenditure with productivity.

The approach aimed to develop a method by which enterprises could conduct an evaluation of the benefits of their returns on their training investment. The project attempted to quantify, how enterprises determine the benefits of an investment in training, or how training affects productivity.

The aims of this report are three-fold:

- Firstly, to provide an overview of current practice and research into determining the cost - benefits of training;
- Secondly, the findings of case studies conducted within Queensland enterprises are used to illuminate current practice and concerns about investment in training. In addition these case studies provide useful insights to how enterprises might consider making judgements on their training expenditure; and

²⁹ QTOS was a non-profit making organisation which represents and reflects the interests of its members who are, in the main, industry trainers.

- Thirdly, brief case studies of how enterprises have examined and addressed the issue of their investment in training are presented providing a rich resource for those interested in investment in industry-based training provisions.

Seven enterprises participated in this study and the case studies from these enterprises form the basis of the findings. These are Queensland Alumina, BHP Australia Coal, Copper Refinery Pty Ltd, Queensland Electricity Commission, Callide Coalfields, Queensland Nickel, and a government department. The participating organisations represent coal mining, secondary processing, refinery, power generation sectors of Queensland industry. Within the participating organisations occupational areas such as production workers, coal preparation workers, stores persons, and maintenance workers were examined.

Each participant negotiated within their organisation the area that would be the focus of their investigation. In addition, the preferred basis for the evaluation in each enterprise was also negotiated. Thus participants were asked to determine how their organisation made its judgements about expenditure on training, for example against 'bottom line' profit, against achievement of some other objectives, as a general evaluation, or as an evaluation of a limited number of areas or sections.

The single most significant outcome of this study was that goals other than bottom-line profit were sought by enterprises to justify their expenditure of training. None of the enterprises had any formal mechanism in place to equate the expenditure on training with productivity increases. When the researchers attempted to determine such an outcome they encountered the complexity of the task, and perhaps why the enterprises avoided this task. The researchers encountered difficulty in being able to account for all of the variables associated with a judgement about a direct relationship between investment in training and changes in productivity.

In some of the studies the benefits of single programs were able to be assessed, but overall there was little interest reported, within the enterprises, in making such equations. Expenditure on training, it seemed, was something to be negotiated once a year and then reviewed a year later. In many cases the actual responsibility for training expenditure was delegated across plant sections and was the responsibility of individual department or section heads.

However, these findings should not be interpreted as there being a lack of interest in the outcomes of the enterprises' training investment. It was very evident that the value afforded to training was based on its ability to secure organisational and strategic goals, particularly those related to workplace reform, such as multi-skilling, cross-skilling, continuous improvement, delegated work arrangements and a broader decision-making role for employees. In all cases development of work practice was contingent upon training arrangements. This was reported consistently in the studies that the key organisational changes are being underpinned by training provisions. Conversely, the interest in training was realised through workplace reform programs. This outcome is reflected in other experiences.

Findings were classified in the following categories: Production, Staff, Equipment and maintenance, and Work practice. These are summarised in Table A5.7.

Table A5.7 Elements and sub-elements investigated by Billett 1994

Production elements	Staff elements	Equipment & plant elements	Work practice elements
<ul style="list-style-type: none"> • turn around time • yearly targets • reworking jobs • increase in business awareness • decrease in production costs • increases in output • reduced customer complaints • repeat business • reported significant incidents • reported significant 	<ul style="list-style-type: none"> • retention of staff • absenteeism • morale • confidence with skills • downsizing • fault-finding ability • back-up training • willingness to contribute • commitment to continuous change • individual flexibility • individual responsibility 	<ul style="list-style-type: none"> • down-time • equipment availability • replacement cost, repair or damage 	<ul style="list-style-type: none"> • group decision-making • reduced waiting time • waste reduction • safety • individual ownership • implementation of employee's suggestion • consultation • culture • restructuring • teamwork

cost incidents	<ul style="list-style-type: none"> alignment with the organisations' goals 		
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Source: Billett, 1994

The study finds that return on the investment would best be realised, in terms of the organisation's activities in areas such as decision-making, teamwork, continuous improvement. This would be more the case if the skill development processes occurred concurrently with changes to, or within frameworks of workplace change, particularly those that value participation, enhanced decision-making and employee autonomy. Like many other authors, the study concedes that it was *“unable to resolve a much discussed question that is the actual return on the investment in training in terms of bottom-line profit. This study like those before it faced the difficulty of being unable to account for all of the confounding variables posed by this question”*.

H. Laplagne and Bensted (1999)

Laplagne and Bensted (1999) report on the impact of training and innovation on the performance of workplaces in Australia. They utilise data from the 1990 and 1995 Australian Workplace Industrial Relations Surveys (AWIRS), a large-scale survey of medium to large (>20 employees) workplaces. AWIRS consists of both cross-sectional surveys (covering about 2,000 workplaces) and a panel survey of some 600 establishments, surveyed in both 1990 and 1995.

Performance was labour productivity, subjectively assessed by respondents in relation to competitors, and training covered the provision of formal training to employees, and also the funding of study leave. When the sample was split between 'leaders', those with high productivity, and 'laggards', productivity assessed as average or below, training helped to explain productivity growth for the laggards but not for the leaders, for whom innovation was more important.

Using the panel data to examine effects of levels of training in 1990 on productivity growth during 1993 to 1995, it was found that the lagged training and innovation variables did not have significant effects on the changes in productivity. In summary, the main strength of this study was its use of a large, representative dataset. The results, however, are rather mixed and not easy to interpret.¹⁴ There are also bound to be concerns about the subjective nature of the performance measures.

I. Townsend and Waterhouse, 2008, *Whose responsibility? : employers' views on developing their worker's literacy, numeracy and employability skills*, NCVER

Although no figures were given, a study of twenty-seven Australian employers offering workplace literacy and essential skills training to their workers found “ improved organizational performance and enhanced bottom line” (Townsend and Waterhouse 2008).

J. Blandy et al, 2000, *Does training pay? : evidence from Australian enterprises*

The focus of the study was on collecting pilot data to test a number of research designs that could form the basis for collecting the data needed to measure and assess the productivity and profitability payoff to enterprise training in the Australian context.

To achieve this goal, the study attempted to replicate survey results from significant overseas surveys using information collected on more than 90 firms in Australia, and undertaking a small number of in-depth case studies. A study by the (Victorian) Office of Training and Further Education (OTFE), Return on training investment: Development of enterprise frameworks (1997) was used as a framework for discussions with three companies. This framework proved useful as a methodological framework, but also proved quite bracing for the companies, in a data-requirement sense.

- A training project introduced a new production technology involving the adaptation of high-angle rescue equipment for a tree lopping and trimming activity. The rate of return to the company on its investment in training exceeds 500 per cent per annum.
- A training project changed the work culture in a particular department of a company. The results have been a 25 per cent increase in productivity, and a rate of return to the company on its investment in training again in excess of 500 per cent per annum.

K. Workplace English Language and Literacy (WELL) Programs

The Workplace English Language and Literacy (WELL) program assisted organisations to train workers in English language, literacy and numeracy skills. Funding was available through competitive grants to organisations for English language and literacy training linked to job-related workplace training.

Enterprises were required to make a cash contribution to the provision of WELL training, at least 25% in the first year, and 50% in the second or third year.

There were three types of WELL projects

- **Training projects:** funding for WELL training projects is available for organisations that have demonstrated a need for language, literacy and numeracy in the workplace. Projects should target workers who need to improve their language, literacy and numeracy skills in order to remain or progress in employment and address participants' employment and training needs.
- **Resource projects:** WELL resources funding is available for the development and trialling of: training materials designed to enhance language, literacy and numeracy skills that are aligned with endorsed training packages; industry relevant language, literacy and numeracy assessment and reporting methods; and professional development resources for industry trainers/assessors aligned with training packages.
- **Strategic projects:** WELL funding is available for projects with national scope and involve strategic activities to support ongoing and cost-effective workplace English language, literacy and numeracy training across one or more industry sectors.

Numerous reviews and evaluations of WELL, and the enterprise-level programs it has funded, have been uniformly positive since its implementation in 1991 (Baylis, 1995; Woods *et al*, 2006; Third Horizon, 2012). WELL has been "a key strategy to address literacy and numeracy workforce needs in the workplace in Australia" (Woods *et al* 2006).

Figure A5.7 Employer requirements when considering purchasing WELL

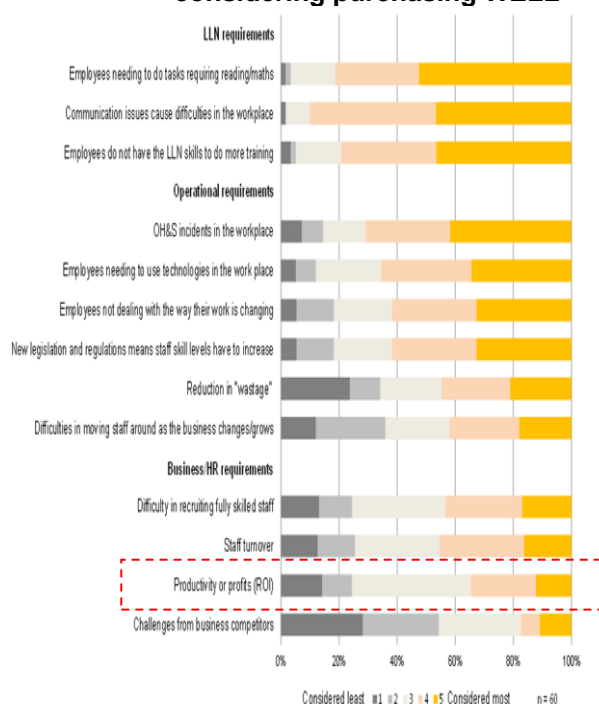
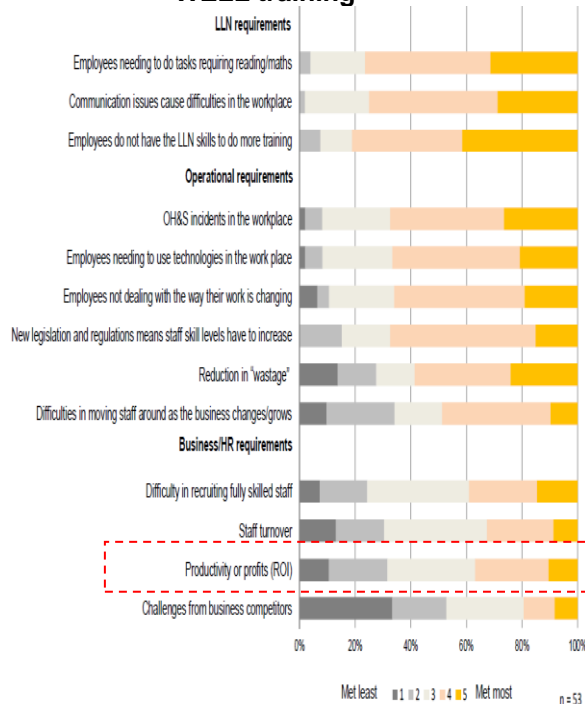


Figure A5.8 Employer requirements met by WELL training



Source: Third Horizon, 2012, Strengthening Foundation Skills in the Workplace, Final Report

According to Woods *et al* (2006):

A key finding of the literature search was that there were only a few reports and one review that reported on the outcomes to the overall WELL program. Most of the findings on outcomes, while useful, were at the industry and enterprise level and therefore often did not involve representative samples.

Difficulties identified over the years include the professional development needs of WELL trainers; cumbersome administration, which means employers and RTOs are less likely to seek WELL funds and a reporting process which is not capturing outcomes and other descriptive data (McGuirk *et al.*, 2001).

The longevity of the WELL program sets it apart from similar approaches reviewed in the literature. Despite repeated mention of the importance of long-term commitment, many initiatives overseas appeared to be 'pilots' rather than established programs still in existence (Woods *et al.* 2006).

Although not a key focus, Woods *et al.* (2006) conducted some review of economic consequences, including quantum impacts to other Government programs (for all levels of Government), contributions to employment outcomes (such as employability, earning potential, productivity) and other outcomes. That review identified two frameworks used in Australia to evaluate these outcomes in work-based literacy and numeracy programs: the Impact Evaluation Instruments and the National Reporting System.

While the Impact Evaluation Instruments had the potential to gather useful data on the economic and social benefits, they had not become part of the WELL reporting system. On the other hand the National Reporting System was used but is perceived as time-consuming and limited to reporting on the learning outcomes of program participants. For the latter reason, earlier trials and pilots recommended the system be used in conjunction with indicators of social, organisational and economic outcomes.

Observed improvements and changes in WELL participants were also reported in several case studies and commissioned evaluations of WELL funded training; one review of the WELL program; and two studies on the reporting mechanisms within WEL. These improvements and changes coincide with the benefits reported from workplace literacy programs in general. As with those benefits identified in similarly designed programs, they include:

- Improved morale and confidence of employees
- Improved skills (oral, written and computer)
- Improved capacity to multi-skill
- Improved team work
- Improved productivity
- Improved attitudes and workplace culture towards training
- The development of a training plan
- Cultural awareness
- Improved occupational health and safety awareness
- Direct cost savings

Examples of sub-program WELL evaluations and case studies which evaluate the impact on business include those undertaken by : Linda Wyse & Associates, 2001, Workplace English Language and Literacy:

- QR: Improving Business Performance.
- CFMEU: Gains For The Employee – Gains For The Employer.
- DARTBROOK COAL: Language, Literacy And Communication A Shared Responsibility Across The Enterprise.
- DULMISION: Increased Productivity and Quality Conformance.

Box 9 Evaluating the WELL program

Woods *et al.* (2006) provided the following advice regarding the evaluation of WELL to the Strategic Analysis and Evaluation Group within the then Commonwealth Department of Education, Science and Training:

An important question to resolve is what is to be evaluated. Our report has examined the literature, which is scant, on the impact of raising workforce literacy levels through programs delivered in the workplace. There is, as we have demonstrated, a larger body of research and evaluation on the effect of raising literacy levels in the general population, and of the effect of general skills training in the workplace. A project design to specifically evaluate the impact of the WELL program will be quite different to an econometric study that attempts to measure the economic benefit of raising adult literacy at large.

Our assumption is that the Department is interested in an evaluation study specifically on the impact of the WELL program. This is on the grounds that it cannot confidently be inferred that any economic benefit of raising adult literacy at large will necessarily accrue through the delivery of the WELL program.

The most useful impact evaluation study cited in our literature review is that by Krueger and Rouse (1998), a study based on just two sites. In our view, it is better to intensively study fewer sites than to thinly study many sites. It is also important to carefully select sites for study so that they cover a diverse spread of projects – diversity in the type of projects and type of business is more important than geographic diversity. This combination of a limited but diverse number of sites will give both rigour and a sense of variability. This can then be used to extrapolate the impact for the program as a whole (using a number of different scenarios), as long as the assumptions that are embedded in any extrapolation are made explicit.

The Krueger and Rouse study covers the impact on both individual program participants (e.g. wages, promotion opportunities) and on the workplace (e.g. staff turnover, absenteeism, productivity), as per the Hollenbeck (1996) framework, and this too is another important element in designing an evaluation.

A good application of the quasi-experimental method discussed above would be to investigate the impact of the WELL program in some large multiple-establishment organisations, where workforce characteristics are broadly similar across the different establishments within the organisation. The impact could be measured for this organisation by imposing limits that the project be confined to a sub-set of the establishments.

We would finally recommend that participation in an evaluation study be made a condition of the awarding of projects under the program.

Source: Woods, D, Cully, M, Bowman, K, Hargreaves, J, Harris, L, and Priest, S, 2006, Review of the Literature: Workplace English Language and Literacy: Report prepared for Strategic Analysis and Evaluation Group, NCVER, Adelaide

A5.3. New Zealand

Generating interest among employers is a growing concern in New Zealand, where learner gains continue to be the focus of evaluations that often contain no information on outcomes for the company (Salomon 2009). There have been calls in recent years to address this issue since “companies are less interested in individual learner gain and much more interested in how performance changes on the job” (Gray and Sutton, 2007).

In New Zealand, Workbase was established in 1996 to improve English language, literacy and numeracy skills in the workplace. Workbase is a non-profit organisation that works in partnership with businesses, the education sector and the government. One suggestion is the use of software developed by Workbase (The New Zealand Centre for Workforce Literacy Development) to capture a range of outcomes and specific LLN gains, including company goals.

In 2002, Skill New Zealand published an interim evaluation of the Workplace Literacy Fund (Skill NZ 2002). The Fund was set up in July 2001 to provide opportunities for employees to gain work-related literacy skills. The fund also aimed to build the capability of workplace literacy providers. Its third objective was to raise the awareness of ITOs of workplace literacy issues and quality solutions. In its first year, the fund supported 11 projects—nine involving workplace learning and two focusing on infrastructure development with ITOs. The evaluation was based on demographic data on participants and interviews with all relevant stakeholders for each project.

The fund provided workplace learning opportunities for 220 learners, predominantly Māori and Pacific people with low levels of literacy who had little previous success with formal education. At the time of the evaluation, the projects were just getting started and were not yet able to demonstrate much impact in the workplace. Those projects that did have workplace objectives found it difficult to quantify the impact. Even the firms that had good measures of accidents, output or attendance found it difficult to identify project participants in their data. Furthermore, it was often impossible to isolate the impact of the learning from numerous other ongoing environmental changes. Most projects did not attempt formal workplace measures but instead relied on anecdotal comment and observation to assess whether the learning was achieving its workplace objectives.

A 2007 review of New Zealand’s national Workplace Literacy Fund (WLF) that supports workplace programs noted not only an “absence of standardised reporting of learning outcomes... and a limited number of final reports”, but also the fact that most managers seemed to be “quite disinterested” in the final reports (Gray and Sutton, 2007).

A. Upskilling Partnerships Program

The Upskilling Partnership Program was a three year program, from July 2006 to June 2009, that aimed to increase the number of workplaces engaging in workplace LLN training. The program's long-term aim was to generate improvements in productivity. The program was devised following Gray’s (2006) literature review. In brief, the evaluation aimed to answer three broad questions:

- What impact do LLN workplace programs achieve for the learners within the programs?
- What is the impact of LLN workplace programs on the workplace?
- What makes a course more effective?

In order to answer these questions, 18 LLN programs were set up on-site in 15 companies around New Zealand. The programs were diverse in terms of the industries involved, company size, geographical location, program formats, duration, and types of learners; they also agreed to be part of the evaluation program. The evaluations sought a wide range of both quantitative and qualitative data to identify outcomes for the courses.

Data sources included:

- company literacy needs analyses (undertaken by the course providers)
- course planning documents
- interviews (pre- and post-course) with course participants, supervisors, company managers, provider managers, course tutors^
- learner assessments for LLN skills (pre and post-course)
- observation of teaching sessions
- supervisor assessments (pre- and postcourse)



- provider records (e.g. attendance and periodic reports), resources (e.g. course manuals), and evaluations.

The Upskilling Partnerships Program evaluation faced several challenges, including:

- fully documenting the large number of different courses
- measuring LLN skills
- identifying the impact of the courses on participants' work practices and their lives outside work
- identifying the impact of the courses on companies' performance and productivity
- establishing that the courses caused the observed impacts.

Overall, a total of 491 course participants were interviewed and assessed precourse, and 343 (69.8%) of these participants were also interviewed and assessed post-course; most of those who missed the post-course interviews had left their companies in the period following the initial interviews. All participants were paid for their attendance time.

As there were no suitable assessment tools available in New Zealand when the project started, permission was obtained to use a reading and writing assessment tool called Go! that had been developed specifically for research projects by the National Foundation for Educational Research (NFER) and used by the major NRDC workplace LLN project in England (Wolf & Evans, 2009). The tool was judged as appropriate for the project because of its 'non-test' format resembling an everyday magazine, its ease of administration (requiring approximately 40 minutes), and its ability to measure small changes in reading skills.[^]

Overall, 80% of course participants reported improvement in their job performance as a result of the course; specific examples included reading blueprints, learning company policies, reading maps and street signs, and completing paperwork, such as hazard and accident reports.

Those who reported improved LLN skills were more likely to report improved job performance. Additionally, there was a positive relationship between refined reading skills and improvement in self-assessed job performance. Ninety-seven percent of the comments made about the course were positive.

Most frequently, they reported that the course had a favourable impact on work tasks requiring reading and writing. Improved oral communication skills for those with English as an additional language was the second most frequently mentioned theme, and improved communication skills for those with English as their first language was the third most common theme.

From a list of possible outcomes given to them, employers and course providers were asked to rate the importance of participant outcomes. Course providers reported that the most notable benefits were increases in participants' personal confidence and job confidence, improved communication with other workers, and a greater interest in training.

These four outcomes were also in the top five outcomes reported by managers, most of whom also commented that communication between management and workers improved. Another important outcome identified by providers was improved speaking skills for those with English as a second language. When reflecting on the impact of their course on the participants' LLN skills, both providers and employers judged that their courses had the most impact on speaking, listening, reading, and writing skills.

Improvement in a participant's ability to read, write, and speak definitely improves individual productivity and contributes to a more positive attitude about themselves and their job. Providers tended to report more positive outcomes and a greater impact on skills than the employers. This discrepancy between views was most marked for writing and ESOL. The difference can be attributed to the fact that providers worked closely with participants from the early diagnostic assessments through to end-of-course assessments.

As most of the evaluations have shown, there is mixed evidence about the links between improved LLN and improved job performance. Participants' comments indicate that the LLN skills developed in the courses have been attributed to positive impacts on workplaces; 76.4% of all participants identified the positive impacts of the course(s) related specifically to work performance and tasks related to reading, writing, oral communication, or numeracy. Those participants who thought they were doing their job 'a lot better' were more likely to experience an increase in reading scaled scores.

Beyond self-report, a significant statistical relationship between improvements in reading and writing and improvements in workplace practices was not found. However, there is evidence that shows a link between participants' self-rated improvement in speaking and listening skills and improvements in workplace practices. This improvement is also supported by employers', providers', and participants' reports on improved communication in the workplace. This is an important finding, given that it was the most important reason given by employers for having and LLN program in the workplace.

To understand how workplace LLN courses can contribute towards labour productivity, it is necessary to be able to show the improvements in employees' skills and changes in their work practices back on the job. This evaluation found that most of the workers' LLN skills improved, and there was consistent evidence that the courses had a largely positive impact on workplace practices. However, the full potential of the workplace literacy programs in these evaluations is hindered by the lack of numeracy provision and stair-casing opportunities for participants to progress to other training programs.

The skills developed in workplace LLN courses contribute to productivity in a myriad of ways, including:

- more accurate completion of forms, such as incident reports and timesheets
- improvements in specific LLN skills, such as measuring
- better following of policies and procedures
- improved oral communication
- increased confidence in work roles, such as taking initiative
- less frustration with workmates and supervisors

These evaluations confirm Wolf and Evans' study (2009) that these courses are successful in reaching workers with low LLN skills who often do not have access to other forms of training or would not otherwise participate in adult learning provision, such as men and Pacific Islanders. This form of workplace training gave workers with low LLN skills the opportunity to develop skills and knowledge that allowed them to perform their jobs more effectively, efficiently, and independently. In turn, both the quantity and quality of their work improved.

Because of the complexity of modern workplaces and methodological challenges for evaluators in this context, it is difficult to provide definitive answers for the question of whether improving employee LLN skills provides direct and substantial impetus for improved performance in the medium term, *let alone* national productivity in the longer term. Nonetheless, this study confirms other research (Finlay *et al.*, 2007; Hollenback & Timmeny, 2008) that well-planned and executed courses, consistent with sound adult teaching principles, can satisfy both company and learner needs. Such courses are positively received, generate considerable positive changes on the individual level, and result in improvements to workplace behaviours.

The authors believe there is scope for replication of studies along similar lines to build the body of rigorous research on workplace LLN programs. In particular, studies could focus on specific LLN skills, such as writing and math. Finally, there would be value in training the longer term impact of LLN programs on other workplace training to examine if they become part of companies' "business as usual" rather than a flitting fad.

As with any research, there are lessons to be learned from this study. Isolating the specific impact of the LLN courses is problematic in workplaces where there are a myriad of factors interacting to influence what occurs. Workplaces do not resemble laboratories in any way, making it extremely difficult to utilize "gold standard" strategies such as control groups. The solution probably lies in using multiple data sources with large samples. Secondly, isolating the specific program elements that produce the greatest impact needs further exploration, perhaps in studies of sites that only vary in a few key elements. Finally, the question remains: to what extent is it the literacy component of these interventions that achieves wider impact versus conventional training interventions?

NZ Department of Labour. (n.d.) summarises the findings of return on investment case studies conducted in three New Zealand workplaces through the TEC's Workplace Literacy Fund. The key findings from the summary include:

- the lack of robust data held by firms that can be used
- the difficulty of isolating the impact of one training program from others that are occurring in companies
- the finding that in one firm the reduction in staff turnover was large enough to make the program cost effective, but did not take into account other factors that may have accounted for this reduction

Investing in Workforce Literacy Pays

- the failure of the studies to find conclusive evidence of cost-benefit does not mean that the programs have no impact, rather it points to the difficulty of research of this nature

A5.4. Canada

In Canada, the Essential Skills and Workplace Literacy program was established in 2003 to enhance the skill levels of Canadians entering, or already in, the workforce.

The shift towards capturing employer outcomes is part of an effort in Canada and internationally to generate greater interest in and commitment to workplace LES training among employers. The assumption has been that they are ultimately most interested in the bottom line, a recurring theme in recent literature (Salomon, 2009).

Yet employers recently surveyed in BC added some nuance to the “bottom line” argument. The study reported that these employers “would seriously consider starting more basic skills programs in their workplace if it helped with profitability, recruitment and retention, health and safety, morale and loyalty, and reducing errors and wastage” (READ 2009). The importance placed on employees’ health and safety, morale and loyalty suggests that employers link attitudes and behaviours to productivity, a long-term impact valued by companies (Measures of Success Background Paper).

In October 2013, a new National Research Project to investigate ROI of Essential Skills training was announced in Canada. The Centre for Learning Impact (CFLI) was awarded a major national research contract to investigate the business impact and return on investment (ROI) of literacy and essential skills training in the Canadian manufacturing sector. Evaluation specialists from the Centre would conduct return on investment (ROI) analysis in eight manufacturing firms using the new Gillis High Impact Evaluation™ methodology. The goal of the eight studies is to investigate the tangible and intangible benefits of essential skills training to the employee and to the organization—how does it enhance employee capability, job performance, engagement? In particular, how does essential skills training impact business outcomes and return on investment? The research is being conducted in collaboration with Excellence in Manufacturing Consortium (EMC) and Human Resources and Social Development Canada (HRSDC) with the goal of helping manufacturers improve training outcomes, business results, and return on investment (ROI).

A. Measures of Success

The overall goal of the Measures of Success: Workplace Literacy and Essential Skills Initiatives project is to develop an evaluation model to measure the long-term outcomes of workplace Literacy and Essential Skills (LES) programs in Manitoba and Nova Scotia. Funded by Human Resources and Skills Development Canada’s (HRSDC) Office of Literacy and Essential Skills, the project is managed by the Centre for Literacy of Québec in partnership with Workplace Education Manitoba and the Nova Scotia Department of Labour and Advanced Education. The project looks at measuring outcomes beyond the end-point of the learning initiatives and will build on an evidence-based model developed in New Zealand that integrates qualitative and quantitative measures (Upskilling Project).

Although, the original framework sought to capture ROI, the final report states that “the Measures of Success project is in large part an exercise in evaluating ROE”. In fact, the title of the report was *‘Meeting Expectations: Measuring the Impacts of Workplace Essential Skills Training’*.



March 2013

The Measures of Success project's research questions are:

1. What are the long-term outcomes (after 6 months) of workplace LES initiatives in Manitoba and Nova Scotia on the participants, workplaces, and companies?
2. What is a valid and reliable model for evaluating long-term outcomes of workplace LES initiatives?
3. What are effective and efficient ways to provide workplace LES initiatives to maximize positive long-term outcomes?

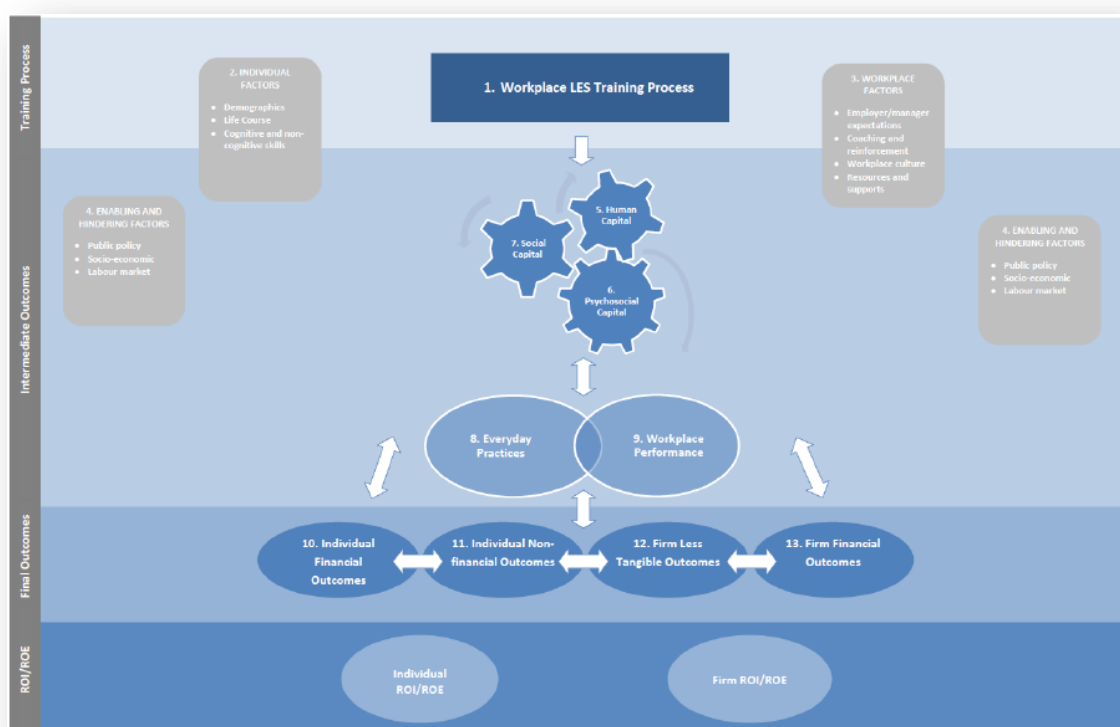
A logic model describes logical linkages among program resources, activities, and outcomes. It is a narrative or graphical depiction of a theory of change. In order to create a credible evaluation model, it is important to develop a theory of change that can describe in specific terms how workplace LES training may lead to various outcomes for workers and firms. A theory of change communicates the underlying assumptions upon which an activity is expected to lead to a specific result. It clarifies how

the change process will unfold, and places attention on the intermediate changes that need to occur in order for long-term outcomes to be reached. By illuminating the “ministeps” that must occur to achieve long-term outcomes, as well as the connections between program activities and outcomes that occur each step of the way, a theory of change can strengthen evaluation, and observed outcomes can be more credibly attributed to the program.

Figure A5.9 depicts a logic model for literacy and essential skills (LES) training in the workplace. Each component of the logic model (except ROI and ROE) is numbered, and corresponds to a table in the Appendix that lists the specific outcomes, indicators and measures for consideration as part of the project evaluation framework. The logic model is based on a theory of change that was developed as a result of a review of the adult learning literature, a review of a sample of Organizational Needs Assessments (ONAs) from each province and a review of the Measures of Success background report. It includes the range of possible outcomes of LES training, supported by evidence of varying degrees of quality. Some outcomes may be pervasive and of a great magnitude, while others may be less common with small magnitude. It is to the responsibility of the Steering Committee to decide which outcomes the Measures of Success project will explore and measure.

The diagram is to be viewed top-down. The theory of change begins with the learning process and moves towards long-term outcomes, and ultimately return on investment (ROI) and return on expectations (ROE). Between the learning process and the long-term outcomes of the program are intermediate outcomes. Intermediate outcomes are hypothesized to mediate the relationship between the workplace LES training process and the long-term financial and non-financial outcomes that individuals, firms, and governments care about. Surrounding the model are some of the contextual factors that must be considered when capturing outcomes of adult learning. These factors may affect outcomes at each stage in the process.

Figure A5.9 A logic model for estimating outcomes and returns to LES training in the workplace



Source: Measures of Success Final Report, 2012

The theory of change depicted by this logic model begins with the LES training process. This component of the model refers to the characteristics of the training activity, the resources employed to provide the training, and the participants’ engagement in and reaction to the training activity. According to the literature, the following features are important characteristics of the training activity:

- Type of skill being taught
- Business alignment
- Match to learner needs and goals
- Program design and delivery (adherence to instructional design and learning principles).
- Duration and intensity of the training
- Instructor

To gather the necessary information, researchers will be asked to collect data using a variety of data sources. The primary vehicle will be structured and semi-structured interviews with a variety of interviewees; however, this will also be supplemented with secondary data sources wherever possible. The research plan calls for the interviews to be repeated at baseline, 3-months after training begins, and 6-months after training begins. To save time, where practical some of the interviews may be combined into group interviews (e.g. a joint interview with project co-ordinator and trainer or with several supervisors).

Figure A5.10 Firm-level outcomes, survey questions

Productivity

1. Over the last six months (since the training began), do you think that productivity (completing tasks quickly and completely) among employees has...?

¹ Increased	² Decreased	³ Neither increased nor decreased	⁴ Don't Know	⁵ N/A for firm
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IF RESPONDENT INDICATED THAT A CHANGE OCCURRED:

2. Do you have an updated report that shows this change? If yes, would you be willing to share it with us?

3. Do you think the change would have happened if the training hadn't taken place?

Very unlikely	Unlikely	Not sure	Likely	Very Likely
1	2	3	4	5

IF RESPONDENT SAID VERY UNLIKELY OR UNLIKELY:

4. Can you be specific about how you think the training made a difference?

Source: Measures of Success, Centre for Literacy, Canada

Measures of Success Data Sources

- ONA and other workplace documentation
- Interviews with project co-ordinators
- Interviews with Trainers
- Management Information System (MIS) participant training data
- Interview with senior employer contacts
- Interviews with managers/supervisors
- Survey completion and interviews with workers
- Other secondary data sources

Evaluation of workplace LES training initiatives has traditionally focused on capturing learner outcomes. Employer impacts, including enhanced productivity, have not been evaluated to the same extent. More recently, there has been an interest in Canada and internationally in documenting such outcomes.

Overall, however, workplace LES evaluation has been dominated by qualitative approaches to measuring outcomes, with quantitative data related largely to program outputs.

For the project partners, the obstacles to a more quantitative, employer-focused approach include limitations imposed by funding agreements with government, the constraints of resources, time, and staff facing SMEs, and employers' concerns about confidentiality and liability. These will have to be addressed when considering whether, how and to what extent to shift to measuring employer outcomes.

Measuring Return on Investment/ROI, a relatively new Level 5 in the Kirkpatrick model, is being advocated more often, but remains on the margins of practice because of the complexity and substantial expense of the exercise, particularly for smaller organizations (18-19). Some recent literature on LES training evaluation also calls for cost and efficiency analyses to help employers make financially feasible training choices and "use existing resources more efficiently." Such analyses, described by some experts as "a matter of urgency", are also seen as important in terms of informing policy (Shi and Tsang, 2008).

The complexity of the quantitative process is a serious barrier. This is underscored in a recent European report on evaluating vocational education and training that stated:

"The "true" effect of a program can only be measured if the method used to quantify change distinguishes the program effects from the effect of other factors, determines what the hypothetical outcomes would be for the same people if they had not participated in the program, accounts for short-, medium-, and long-term outcomes, and avoids selectivity and heterogeneity biases while ensuring validity (Descy and Tessaring, 2005).

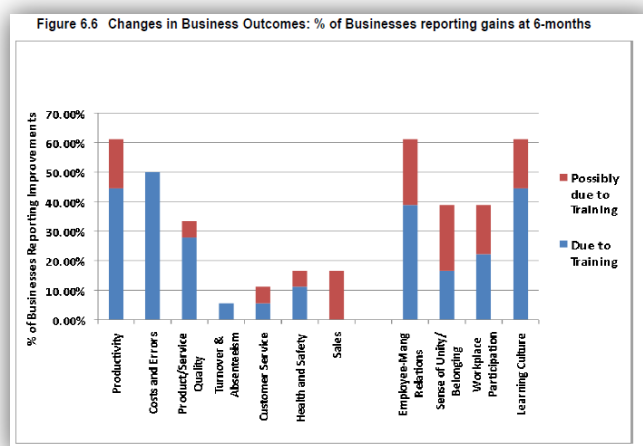
Morale as an outcome attractive to employers, and perceived as conducive to the profitability of business, also surfaces in a recent report on the impact of workplace LES programs in small and medium-sized enterprises (SMEs) in Nova Scotia (Praxis 2008). When asked to identify the "direct benefits to the company" of the workplace LES training programs they had offered, employers "focused on improvements in self-confidence, self-esteem, morale, job satisfaction and communications 'soft skills'". In their view, the improved attitude and behaviour of their employees, "non-technical and somewhat intangible changes", translated into "significant changes in the workplace as a social environment...that provided the basis for downstream outcomes", i.e. outcomes evident much later. These outcomes related to:

- communication and interaction in the workplace
- the ability to adapt to ongoing changes in workplace technology and processes
- the management of workflow and technical problems
- management understanding of employee capacities, talents and limitations
- the trainability and opportunities to promote from within the company

B. UPSKILL (2014) UPSKILL: A Credible Test of Workplace Literacy and Essential Skills Training

Building on the conceptual framework described in the '*Measures for Success*' study (refer to Figure A5.9), the UPSKILL program utilized a randomized control trial design to provide reliable measures of the impacts of Essential Skills training in the workplace. A total of 88 firms in the Accommodations and Food Services Sector, primarily hotels, were randomly assigned to a program group where employees

Figure A5.11 Example of reporting from Measures of Success study



Source: Measures of Success, Centre for Literacy, Canada

were offered a maximum of 40 hours of Literacy and Essential Skills training on-site during working hours, or to a control group whose employees did not receive the training. Random assignment efficiently controls for all factors, other than the UPSKILL training, which could affect employee and employer outcomes. Thus program-to-control-group comparisons provide reliable measures of the impact of UPSKILL training.

As a result of the training delivered through the UPSKILL program, firms experienced gains in revenue, cost savings from increased productivity, and reductions in hiring costs that amounted to about \$4,600 per participant. When firms are assumed to bear the full costs of training and release time for workers, their net benefit is \$577 per participant, for an average return on investment of 23 per cent.

Over 70 per cent of program group firms reported significant increases in satisfaction of hotel guests compared to less than 40 per cent of the control group. Significant reductions in customer complaints were also observed among program group firms, a key driver of customer loyalty, return visits, and repeat sales. Over three quarters of firms in the program group reported reductions in the incidence of customer complaints compared to less than a quarter of control group firms.

Employers recorded significant reductions in wastage and errors in both core job tasks as well as administrative activities. Nearly half of program group firms reported significant reductions in error rates, compared to only one in five firms in the control group. These efficiency gains translated into cost savings of about \$1,000 per participating employee in the year after enrolment. Accompanying these gains was reduced time spent by supervisors monitoring and correcting work of their staff, adding another \$1,200 per participant in savings over the follow-up period. Firms in the program group also experienced a reduction in hiring costs, arising from increased job retention. For the average employer with 15 employees, this translated into about one less hire that needed to be made during the year after enrolment.

Program group firms were 22 percentage points more likely to report an increase in customer loyalty. This was accompanied by a positive impact on occupancy rates, with about half of program group firms having experienced an increase compared to about a third of the control group. It is estimated that these gains in occupancy rates, which were accompanied by small increases in spending on food and beverages, added some \$2,200 in incremental revenues, per participant, for program group firms over the year following enrolment.

The amount of release time that employers made available to participants to engage in training was, on average, just under 20 hours per participant – only about half of the 40 hours offered. However, once participants began the training, there were very high attendance rates and participants missed only a small fraction of what was available.

Participants who were working in firms that had reported a high degree of needs at the time of enrolment experienced substantially larger impacts on their literacy scores and job performance than firms with fewer core pre-training business needs.

C. Long, E. (1997) aka ABC Canada, The impact of basic skills programs on Canadian workplaces. Toronto: ABC Canada.)

The Impact of Basic Skills Programs on Canadian Workplaces (ABC Canada)

This study ventures where few others have—into quantitative recording of the data gathered from a study of 53 workplaces. Within that sample half of workplace basic skills programs were coordinated by joint labour-management committees, a further 47 per cent were coordinated by the company alone. In 96 per cent of the workplaces surveyed, employees entered the basic skills programs on a voluntary basis. Over half the programs were held in a combination of employer and employee time. In 32 per cent of the workplaces, programs were held on employee time alone and the remaining 17 per cent of programs were on employer time. The authors note that every effort was made to interview an employer and an employee representative at each workplace.

The validity of these self-report studies is increased by including large samples. For example, Long (1997) surveyed 86 individuals from 53 workplaces across Canada, covering a diverse range of workplace types and sizes. Findings of this study indicated that programs meant to enhance basic skills do result in significantly positive impacts for local workplaces; this study spanned a variety of positions, including business owners, individuals within the human resource department, as well as actual participants.

According to Long (1997), such programs impacted both the 'warm fuzzy' factors, like confidence, as well as hard, 'bottom-line' factors; survey participants reported that work effort, productivity, and quality

all improved, while error rates decreased. Course participants also reported an improved ability to work independently and use workplace-based technology, as well as being better able to work within a team based model.

One survey that is widely cited covered 86 individuals in 53 workplaces in Canada (Long 1997). Survey participants reported that work effort, productivity and quality improved, while error rates decreased. Participants in the program also had an increased ability to work independently and use workplace-based technology. They were also better able to work within a team-based model.

In Long's survey (1997) of 53 workplaces in Canada, employee retention improved, as did labour relations in the workplace. In a similar survey by Bloom and Lafleur (1999), 55 Canadian employers reported increased customer retention and increased employee retention. Similar benefits were achieved at BHP Billiton Diamonds, with employers commenting that:

- 94 per cent of respondents stated that basic skills programs positively influenced participants' reading, writing and oral communication skills in ways that benefit the workplace.
- Close to 80 per cent of the respondents reported their workplaces had seen increased productivity because of the basic skills programs.
- 87 per cent of respondents believed basic skills programs exerted an independent and positive influence on participants' ability to problem-solve.
- 87 per cent of respondents said that programs impacted positively on participants' ability to use workplace-based technology.
- Two-thirds of respondents had seen reduced error rates in people's work.
- 85 per cent of respondents had seen increases in the quality of people's work.
- 73 per cent of respondents had seen increases in work effort.
- 82 per cent of respondents linked increased health and safety with their workplace's basic skills program.
- 100 per cent of respondents agreed that workplace basic skills programs were a good training investment and would recommend them to other workplaces.
- 97 per cent of respondents reported that basic skills programs increased the confidence level of program participants.
- 90 per cent of respondents indicated that employees who took basic skills programs had an increased ability to work independently.
- 85 per cent of respondents reported that basic skills programs enhanced participants' ability to work within a team-based model.
- Close to 90 per cent of respondents indicated that employees were more promotable as a result of basic skills programs.
- 63 per cent of respondents reported that basic skills programs helped workplaces to retain employees over time.
- 93 per cent of respondents reported that basic skills programs helped to increase employee morale. Program participants felt better about their workplace, and about the unions that represented them.
- Many respondents stated that basic skills programs help remove barriers in the workplace based on age, sex, race and language.
- 85 per cent of company and employee representatives concurred that basic skills programs had improved labour relations in their workplaces.

D. Conference Board of Canada (2002-2005)

In collaboration with the American Society for Training and Development (ASTD), the Conference Board of Canada studied investments in training in firms of various sizes through North America. The report attempted to link training to "respondents' rating of organizational performance" in five categories: ability to retain essential employees, employee satisfaction, quality of products/services, customer satisfaction, and overall profitability.

The measure was informed opinion, rather than actual measurements, i.e., respondents were asked to rate a change in organizational performance over the past year on the basis of "better, no change, or worse." In a general sense, then, the study concluded that training: had little effect on the ability to retain essential employees; either improved or had little effect on employee satisfaction; improved product quality significantly; improved customer satisfaction to a degree; and greatly improved overall profitability (Barker, 2001).

E. Bloom *et al.* (1997)

Bloom *et al.* (1997) report the findings of a survey of 41 Canadian companies to explore the benefits of improving literacy skills in the workplace from the perspective of both employers and employees. 21 of the surveyed companies provided qualitative feedback on the benefits of literacy training to their organization by indicating which benefits they had observed in their employees as a result of literacy training; these responses are shown below.

Benefit to employers Number of citations (out of 21 respondents)

- Increased ability to handle training on the job 12
- Better team performance 11
- Improved labour-management relations 10
- Increased quality 10
- Improved results in job-specific training/quicker training results 9
- Reduced time per task 8
- Reduced error rate 8
- Better health and safety record 7
- Reduced wastage 6

A similar survey by Bloom and Lafleur (1999) of 55 Canadian employers explored the benefits of improving literacy skills in the workplace from the perspective of both employers and employees. Employers reported:

- improved quality of work
- better team performance
- improved capacity to cope with change in the workplace
- improved capacity to use new technology
- increased output of products and services
- reduced time per task
- reduced error rate
- better health and safety record
- reduced waste in production of goods and services.

Another Canadian company provides its ethnically and linguistically diverse workforce of 5,200 with a broad mix of training opportunities. Participating in the LLN and computer courses has helped employees learn strategies for interacting across cultural barriers, a finding supported by Bloom and Lafleur (1999). The programs have enabled the company to:

- recruit ESL teaching assistants from among its employees
- develop leadership and management potential
- hire people with job skills or aptitudes, but who have English language challenges
- develop the teamwork skills of employees, which leads to fewer interpersonal problems on the production lines, better communication on the shop floor and improved safety awareness
- find employees who are more likely to read company documents
- reduce error rates (The Conference Board of Canada 2002a).

Bloom and Lafleur (1999) also found that the impact of workplace education programs spilled over into family and community life. Participants say that employees gain skills that enable them to undertake activities that range from helping with their children's homework and participating in school functions to accepting voluntary community roles. [Bloom and Lafleur 1999] Bloom and Campbell (2002) reviewed joint training programs (JTPs), which are workplace education programs jointly developed and managed by employers and unions. They identified a range of benefits for employers, unions and employees.

Table A5.8 Skills and organisational benefits gained by employees through WEPs

Skills Gained by Employees Through WEPs	Organisational Benefits Gained Through WEPs
<p>Greater willingness and ability to learn for life</p> <p>Improved ability to listen to understand, learn, and apply information and analysis</p> <p>Improved understanding and ability to use documents</p> <p>More positive attitude toward change</p> <p>Better ability to build and work in teams</p> <p>Increased understanding of and ability to use numbers by themselves or in charts and tables</p> <p>Improved capacity to think critically and act logically to evaluate situations, solve problems, and make decisions</p> <p>Better ability to communicate using English</p> <p>Improved ability to use computers and other technology, instruments, and tools and information systems effectively</p> <p>Heightened understanding and willingness to work within the group's culture</p> <p>Stronger understanding of and ability to use prose</p>	<p>Improved employee morale/self-esteem</p> <p>Increased quality of work</p> <p>Improved capacity to solve problems</p> <p>Better team performance</p> <p>Improved capacity to cope with change in the workplace</p> <p>Improved capacity to use new technology</p> <p>More employees participating in job-specific training</p> <p>Higher success rate in promoting employees within the organisation</p> <p>Improved effectiveness of supervisors</p> <p>Increased capacity to handle on-the-job training</p> <p>Improved labour-management relations</p> <p>Increased output of products and services</p> <p>Higher success rate in transferring employees within the organisation</p> <p>Improved results in job-specific training</p> <p>Increased profitability</p> <p>Reduced time per task</p> <p>Quicker results in job-specific training</p> <p>Reduced error rate</p> <p>Better health and safety record</p> <p>Reduced waste in production of products and services</p> <p>Increased customer retention</p> <p>Increased employee retention</p> <p>Reduced absenteeism</p>

F. Kelly (1999). *Workplace education works: the results of an outcome evaluation study of the Nova Scotia workplace education initiative*. Halifax, NS: Nova Scotia Department of Education.

Kelly's (1999) evaluation of workplace literacy programs in Nova Scotia used a series of end-of-program evaluations, questionnaires, and interviews with the managers and participants of 24 workplaces across the province. The program's stakeholders' comments, observations, and experiences led Kelly to conclude that the Workplace Education Initiative enhanced availability of skills education and improves skill attainment for Nova Scotia's workplaces. The study does not include any quantified changes of either the learners' or the company's performances.

A5.5. United Kingdom

In 2003, a landmark study found no systematic data are available for the UK on the benefits to employers of investing in basic skills training (Ananiadou, Jenkins, & Wolf, 2003).

UK government policy has become increasingly occupied with the skills of the workforce, and especially those of adults. The largest and most far ranging of these are the English government's 'Skills Strategy', which is occupied with workforce skills as a whole, and its 'Skills for Life' strategy, which sets ambitious targets for the numbers of adults who should improve their basic skills over the next five years.

The UK results from IALS indicated that around a fifth of the population was at the lowest level of literacy. This led to the government setting up a major inquiry into adult basic skills, headed by Lord Moser, which in turn recommended a major public initiative, 'Skills for Life'. While unequivocal in its advocacy of major efforts to improve adults' basic skills, the 'Moser Report' also recognised the lack of good evidence in the area, and its neglect by academic researchers. One of its recommendations was for the creation of a national research centre that would be independent of government (though funded by it) and that would build up an evidence base on both the impact of basic skills problems and, even more importantly, on effective strategies for recruiting, motivating and teaching adult learners.

This was duly accepted by the English government, and the National Research and Development Centre for Adult Literacy and Numeracy (NRDC) was established, involving a consortium of universities and practitioner organisations. The recent major report that did address workplace basic education, also from the UK (Wolf and Evans, 2011), is mainly concerned with measuring the benefits of programs for individuals, employers, and society, rather than with approaches to teaching and learning.

A. Enhancing 'Skills for Life': Adult Basic Skills and Workplace Learning, 2003–2008

Wolf, A., & Evans, K. (2009). *Enhancing 'Skills for Life': Adult basic skills and workplace learning*. London: Institute of Education, London University.

Wolf, A., Aspin, L., *et al.*, 2010, The rise and fall of workplace basic skills programs: lessons for policy and practice, IN Oxford Review of Education, Vol 36 No 4 Aug 2010, pp385-405. Available online via A-Z Journals or in print in the library.

A longitudinal research project in the UK (Enhancing 'Skills for Life': Adult Basic Skills and Workplace Learning, 2003–2008) that has been tracking outcomes from workplace literacy for individuals (over 400 employees) and their employers found that “very few examples of direct impact in narrowly economic terms” were reported by employers. The study concluded that “government policy makers were mistaken in expecting immediate and major effects on productivity” (Wolf 2008).

The Enhancing 'Skills for Life' Project in the UK has found that, “The most marked benefits for individuals and organisations are in personal and/or work satisfaction. Workplace learning has the potential to change individuals' 'learning trajectories' and encourage them to rethink their ambitions and capabilities... and continue with formal learning in later years” (Wolf 2008: 1).

Wolf and Evans (2011) report on a 7-year longitudinal study in England that aimed to identify the benefits to employers and to individual learners of workplace basic skills programs. It collected quantitative and qualitative data from learners and employers at different points in time, and linked these to measures of the impact of improved skills levels on the broader economy. One of its major findings is how difficult it is, even with goodwill and determination on the part of both employers and the practitioners, to support sustainable programs in workplaces using the English funding and accountability systems for adult basic education.

Wolf and Evans (2011) argue that there is an important contrast between “human capital”, or “technical” approaches to workplace literacy learning on the one hand, and “social practices”, or “situated” views of literacy, on the other.

Similarly, Wolf and Evans (2009) conducted a large-scale study of UK workplace courses in basic skills, English for Speakers of Other Language (ESOL) and Information Technology, and tracked 567 learners and 53 workplaces over several years. The researchers used the same literacy assessment tool as the current study (Go!), collecting data at the start of the courses, after one year, and then two years later. Courses were typically 30 hours long, but—unlike the ones in the present study—were not contextualized to the participants' workplaces. Participants showed a very small average gain in reading skills between testing. Some participants showed quite big and unstable changes (both up and down),

suggesting some 'regression to the mean. While native English speakers made very small improvement, their ESOL counterparts averaged statistically significant gains. The authors concluded that workplace courses are successful in reaching adults who do not participate in other forms of learning, and these individuals are more likely than their peers to continue formal learning in later years.

One of these studies, produced in the connection with the Enhancing 'Skills for Life': Adult Basic Skills and Workplace Learning Project (2003–2008, UK) qualified this finding by noting that such outcomes should probably not have been expected in the “immediate” term, i.e. by program end (Wolf 2008: 1). However, it is important to examine the research questions that guided these studies and to note the types of data they collected.

Figure A5.12 Questions used to determine employers' motives for sponsoring basic skills classes

Q29a Can you please look at this list and tell us which of these outcomes you think your company is hoping to achieve through this course/training programme? Please select all that apply. *PLEASE PROMPT FOR ANY OTHER ANSWERS. SHOW CARD.*

1. Improve job-specific skills of staff	[]
2. Improve 'soft' skills of staff (e.g. team-working, communication)	[]
3. Offer general development to staff	[]
4. Increase staff morale	[]
5. Reduce number of errors at the workplace	[]
6. Reduce absenteeism	[]
7. Reduce staff turnover	[]
8. Improve health and safety	[]
9. Increase staff confidence	[]
10. Help staff to be receptive to change	[]
11. Other (please specify)	[]

Q30a Which of the above would you say is the most important and why?

Source: Wolf *et al*, 2004

B. Taylor, Evans and Mohamed 2008

Recent multi-site, longitudinal studies in Canada and the UK have preliminarily reported “mixed” or “very few” results on employer outcomes (Taylor, Evans and Mohamed 2008).

Tentative evidence is also conveyed in a new study of eleven workplace literacy and essential skills programs in Canada and the UK which found that, although there were “significant gains in abilities for the individual worker . . . the extent to which these translated into gains for the employer or sustained over time was much more mixed” (Taylor, Evans and Mohamed 2008).

A recent study of eleven workplace LES programs in Canada and the UK reported “significant gains” to individual workers, particularly in soft skills, or attitudes towards themselves, their job and employer, and learning. The authors concluded that, “As opposed to identifying productivity gains relating to both formal and informal training, it may be more advantageous to better understand employee job satisfaction and engagement with the workplace” (Taylor, Evans and Mohamed 2008).

C. Office for Standards in Education Children's Skills and Skills. (2008). *The impact of Train to Gain on skills in employment*. London: Ofsted.

A UK study in 2008 (Office for Standards in Education Children's Skills and Skills) based their evaluation report on a wider range of documentation to assess impact. The study used a team of government inspectors to visit 74 employers and interview 104 workplace supervisors and 157 employees on programs funded by the workplace literacy program Train to Gain. The report concluded that the program succeeded in raising employees' personal skills by improving their knowledge, understanding, motivation, teamwork, self-confidence, and self-esteem. In addition, they reported that, although there was no official method for measuring the training's benefits on productivity, there were strong indications that work practice and workplace competitiveness improved. Employers also identified specific benefits such as reduced staff turnover, improved working practices and/or understanding of health and safety requirements.

In the United Kingdom, employers who have offered their workers training programs, including basic skills education, through the national Train to Gain service indicated that, through such programs, they could demonstrate their commitment to developing their staff and therefore promote an "employee-friendly culture in their business," which they apparently assumed to be important and beneficial to their employees and their organizations (LSC 2008a: 8-9).

Focusing on this large cluster of improvements in learners, results of the Enhancing Skills for Life Project in the UK show that: The most marked benefits for individuals and organisations are in personal and/or work satisfaction. Workplace learning has the potential to change individuals' 'learning trajectories' and encourage them to rethink their ambitions and capabilities... and continue with formal learning in later years" (Wolf 2008).

D. Dearden *et al.* (2000)

The only major recent study for the UK (and the one cited in most discussion of this issue) is that by Dearden *et al.* (2000) who constructed an industry-level longitudinal dataset for manufacturing industries (but not service ones) by combining data on training from the LFS with Census of Production information on labour, capital and value-added. Over the period 1984 to 1996 it was found that increases in the proportion of workers trained in a given industry were associated with increases in productivity (value-added per worker). The effects were quite large. The researchers estimate that raising the percentage of workers trained in an industry by 5 percentage points was associated with a 4% increase in productivity and a 1.6% increase in wages. The implication is that not all productivity gains accrue to workers in the form of higher wages; some are appropriated by firms as enhanced profitability (as one can reasonably assume would be the case with basic skills-related improvements).

The main strength of the study is that the use of longitudinal data enables effects to be traced over time. However, because industry data were utilised there is a possibility that, although the authors do their best to control for technological change, certain high technology industries may train lots of workers at the same time as productivity gains are really due to the richness of technological opportunity. From our perspective the main problem with the study is that, as already noted, it does not use firm-level data: firm-level panel data do not appear to be available for Britain.

E. National Institute for Adult Education/NIACE study Catching Confidence (Eldred *et al.* 2006)

The National Institute for Adult Education/NIACE study Catching Confidence (2003-2006) was launched to validate a body of anecdotal evidence from adult education experience that suggested an important connection between learning and confidence. The project "set out to examine confidence in relation to learning and ways of catching changes in confidence during episodes of learning. It also attempted to identify those things that help to build confidence in teaching and learning."

The concept and nature of confidence were studied and practitioner-researchers collaborated to create a tool capable of capturing changes in confidence (Eldred 2006). The researchers distinguish between "measuring" which suggests precise instruments and results, and "capturing" which is more nuanced.

A5.6. United States

The limited amount of US research in this area has been reviewed by Bartel (2000) which looks at 16 case studies, all in the US. The returns on training investment estimated in the studies were extraordinarily high, varying from a mere 100% to 5,900%! However, many of the studies were methodologically flawed, as Bartel demonstrates.¹⁶ Only two of the 16 studies were judged to have avoided serious methodological defects. The calculated rate of return on investment in training for these

firms were 100–200%, considerably higher than for other types of evidence, although there must be doubts about how typical such results are.

Bartel (1994) also utilised US data, in this case a sample of 155 firms from a 1986 Columbia Business School survey. Productivity was measured as net value-added per worker. Training was measured by the presence or absence of a formal training plan. Training was assumed to change if a formal training plan was implemented between 1983 and 1986. It was found that the introduction of a new training plan between 1983 and 1986 was associated with large increases in productivity, of the order of 40%. The research revealed that other changes in the workplace, such as new methods of job design, new performance appraisal schemes, or employee involvement schemes did not have statistically significant effects on productivity.

As noted above, one of the difficulties associated with estimating the effects of training (including basic skills provision) is that it may not operate in isolation from other practices of the organisation. A number of US studies have investigated the effects of 'bundles' of innovative work practices on productivity, with training usually included as one component of the bundle. For instance, Ichniowski *et al.* (1997) showed that productivity levels in US steel plants tended to be significantly higher on production lines where a bundle of HRM practices were in use. More recently, the effects of HRM practices have also been analysed using British data (Guest 2000; Michie and Sheehan-Quinn, 2001). These suggest that bundles of HR practices, including training, may be related to measures of corporate performance, but it is not possible to extract the role of training specifically in the analyses.

Case study research on the return to training for particular firms is also scarce. In the basic skills-specific literature, only the study by Krueger & Rouse (1998) was able to estimate these (and found that the existence of a government subsidy produced returns on the employer's own investment of acceptable levels). Firms seldom undertake evaluations of their training programs, perhaps perceiving the benefits to be obvious, or that the evaluation process would be time-consuming and costly in itself; insofar as evaluations are undertaken they are likely to be informal and not involve strict cost-benefit analysis.

A. Carnevale & Schulz, 1990

In a major US study of costs and benefits to training, conducted for the American Institute of Training and Development, most major enterprises reported undertaking some type of review of their training expenditure. However, fewer than half of the training programs conducted in America are formally evaluated (Carnevale & Schulz, 1990).

This, it is argued by these writers, is evidence of the implicit faith of management in the effectiveness of their training investment. A counter argument suggests that because formal evaluations are not frequently conducted the actual benefits of an investment are rarely appreciated, consequently during expenditure cuts the training budget can become an easy target.

Carnevale and Schulz (1990) provide an overview of theoretical ROI models is provided, together with examples of practical and innovative approaches adopted by a number of enterprises. Examples of enterprise approaches for assessing returns from training include:

- behavioural change evident via annual employee opinion surveys (used at Johnson & Johnson)
- designing all training to address five key operational objectives: zero production defects; reduced total cycle time; integration of production and manufacturing; becoming a customer-driven company; and developing a participative management culture (used at Motorola)
- production units per hour per employee (used at Polaroid)

In a major study conducted in America similar findings were reported with many large corporations valuing their investment in training in terms of its ability to secure strategic corporate goals (Carnevale & Schulz, 1990).

Sophisticated evaluation approaches are rarely applied, particularly if the program is a continuation of ones that have been occurred previously. Only one company in the American study, Xerox, reportedly conducted any form of longitudinal evaluation, using feedback from course participants, their manager and subordinates. Johnson and Johnson, whom it is claimed has a highly developed and effective training provision, use qualitative information, that is perceptions of individuals, accounts and descriptions of worth, for about 80% of their evaluation data. It is also suggested in the American study that the use of cost-benefit analysis is often perceived as criticism by trainers. Training managers report being harried and under great pressure to perform and having neither the time nor resources available to conduct comprehensive cost-benefit analysis.

For example, at Motorola training is not required to address bottom-line profit, rather the ability to secure strategic objectives, such as zero product defects, reducing cycle time, integrating production and manufacturing, becoming a customer-driven company, and, developing a participative management culture. However, other companies were more focussed on a direct relationship between expenditure and the direct contribution to bottom-line benefits. At Vulcan, for example, before a training program is implemented the training department has to provide a forecast of likely return on expenditure. Senior management then use a proforma to make judgements about the viability of the forecast.

Only if management believe that the expenditure will result in a substantial increase in bottom-line profit, will the training program be sponsored. Polaroid uses the same units of measurements for performance standards and training evaluation. However, sometimes projections of past operations are used to determine likely cost -benefit outcomes. Significantly, while cutting staff by 30 %, Polaroid doubled its training budget despite having no form data to support that decision. Judgements about training in Travellers are not based on bottom-line profit, instead an emphasis is placed on management behaviour, supervisory tactics and strategic planning effort.

These examples indicate a lack of consensus on how the benefits of an investment in training should be realised. Not all companies were concerned with judgements against a direct bottom-line profit. Alternatively, many companies viewed the contribution of training should be more linked to the attainment of key strategic goals. It is not clear from the study (Carnevale & Schulz, 1990), whether this decision is based on attempts to deal with the difficulty of quantifying outcomes or some other rationale.

There is also the issue of focus. Key priority areas are the ones that are most likely for expenditure to be made without either questioning, or demands for accountability. As one respondent suggested "If the problem hurts enough, no one seems to talk about the money it costs (Lombardo, 1989:64).

With such differences in the focus of reporting on benefits, it follows that in these organisations an equally diverse means of gathering information was used to make judgements. As mentioned above, Johnson and Johnson used a self, supervisor and subordinate report system over a six month period. Participants were asked to define their perceptions of change resulting from the training program. The participant's supervisor responded to a questionnaire, as did 5 - 8 subordinates. The New England Telephone used self-reports with a questionnaire being administered at the completion of the program (satisfaction with presenters etc). This was followed three months later by survey on training program's effectiveness in relation to work practice. A survey was also responded to by the line supervisor.

Another informative finding of these studies was that across the major American enterprises which were involved in the study, it was found that line-management were, over whelmingly, involved in making decisions about training provisions. From what has been reported above it is possible to draw some tentative conclusions, about approaches to making decisions about the return on the training investment.

Firstly, unless the full range of benefits can be articulated when making judgements about the worth of the investment, it may be inappropriate, to attempt anything other than an approximation, as the findings may not do justice to the full range of benefits. Or put more clearly, without the total picture of the investment's benefits their worth may be underestimated.

Secondly, it is necessary to have access to means of determining costs and benefits that are practical and can be utilised without an unacceptable drain on the training resources. What has been reported is that the traditional cost-benefits analysis approach is inadequate because of the demands it makes and the lack of confidence in its findings. In particular, there appears to be a concern that the sort of quantitative approach that might be taken through a bookkeeping approach may underestimate some key contributions of training. Thirdly, organisations need to be aware that there are a number of ways of determining benefit, not only against bottom-line profit but also against some specific organisational goals, such as strategic initiatives. It may also be necessary to consider the areas in which the training is most likely to impact on productivity or achievement of strategic goals, and use that as a basis for analysis. Extending this theme briefly it is appropriate to consider some of the goals of developing workers' skills.

B. Krueger and Rouse, 1998

In the United States in 1998, Krueger and Rouse (1998) conducted a study that was described by Johnston (2004) and Ananiadou, Jenkins and Wolf (2003) as the most the most rigorous quantitative evaluation of a workplace literacy program. The researchers examined the impact in a manufacturing

company and a service company by comparing program participants (sample size = 355) with non-participants (sample size = 526). The indicators they used were:

- Hourly wage
- Promotion
- Staff turn-over
- Absenteeism
- Performance awards received by employees
- Productivity

The only criticism of the methodology cited was Johnson's (2004) comment on the use of a short follow-up period and the researchers' own caution that the findings are not necessarily applicable to other programs as they were based on one training program within two workplaces. Findings on the economic outcomes, such as improved productivity and dollar values of benefits, savings and costs

Krueger and Rouse (1998) indirectly assessed productivity outcomes by asking program participants their perceptions of productivity gains. In the service company, perceived productivity was higher for program participants. In an analysis of the effects of work-based literacy and numeracy training on absenteeism, Krueger and Rouse (1998) find some effect. However, they caution that the effect is small and is likely to decrease with time.

As previously suggested, Krueger and Rouse (1998) undertook a cost-benefit analysis for the training in the two companies. They estimated that for the manufacturing company, the benefits of the training program outweighed the costs of the training program in terms of increased productivity. They suggest that without government subsidies, the benefits would not have outweighed the costs as the government covered approximately half of the training costs.

There was no evidence that participation in the program made workers more or less likely to leave the workplace after training (Krueger and Rouse, 1998).

Findings on the outcomes to individuals in terms of employability and salary earning capacity

The findings on wage growth were inconsistent. There was no significant impact on wage growth between program participants compared to non-participants in the services company. There was evidence that program participants at the manufacturing company had a small positive effect on wage growth. They were also seven per cent more likely to apply and gain a promotion.

Krueger and Rouse (1994, 1998) studied the impact of workplace literacy programs on a variety of employment outcomes and collected comparative data for trainees and non-trainees. Extracts from Annaiadou *et al*'s summary of the study are reproduced below:

A basic skills tuition program was delivered to 480 low-skilled, hourly-paid workers at two mid-sized New Jersey (US) companies (one service, one manufacturing). It ran for approximately 16 months and classes were taught on-site in five 8–12 week blocks. The program was subsidised by the federal government...The training included subjects like basic reading, writing and maths and English as a Second Language and was in part tailored to specific company needs.

The authors found small effects of the program on all outcomes investigated (although note that the follow-up period was quite short). In the service company, there was no significant effect on wage growth of program participants compared to non-participants, whereas there was a larger growth in earnings for trainees at the manufacturing company compared to non-trainees.

Workers who had participated in the program had a lower absenteeism rate during the weeks in which they had classes and this effect continued for the next two months, although it was quite small. There was no evidence that participation in training made workers either more or less likely to leave the company after training.

*In the service company, self-reported productivity was higher among trainees: this may reflect performance or may reflect higher self-esteem. For almost all of the other variables measured, differences between training program participants and non-participants did not reach conventional levels of significance. One exception was that participants at both companies were significantly more likely to report that they planned to take additional classes in the future compared to non-participants. [Ananiadou *et al* 2003:16-17]*

There is one plant-level study (Krueger and Rouse 1994, 1998) carried out in the US which compares outcomes for recipients/non-recipients of basic skills training and, because of its quality and uniqueness, summarise it in some detail.

The one properly structured quantitative study of the impact of workplace basic skills tuition which we have identified is that by Krueger and Rouse (1994, 1998) who studied the impact of workplace literacy programs on a variety of employment outcomes for individual employees, such as earnings, staff turnover, and absenteeism. The study is particularly valuable in that it was able to collect comparative data for trainees and non-trainees. Moreover, the structure of financing was similar to that currently being offered to employers in England. A basic skills tuition program was delivered to 480 low-skilled, hourly-paid workers at two mid-sized New Jersey (US) companies (one service, one manufacturing). It ran for approximately 16 months and classes were taught on-site in five 8–12 week blocks. The program was subsidised by the federal government, so employers only had to meet the indirect costs that it incurred, i.e. mainly the forgone costs of production due to staff release, rental of training rooms and wages of employees who organised (but did not deliver) the training. The content of training included subjects like basic reading, writing and maths and English as a Second Language and was in part tailored to specific company needs.

The authors found small effects of the program on all outcomes investigated (although note that the follow-up period was quite short). In the service company, there was no significant effect on wage growth of program participants compared to non-participants, whereas there was a larger growth in earnings for trainees at the manufacturing company compared to non-trainees. This was especially marked for those who took the education classes with a strong company-specific focus (e.g. blueprint reading), and remained even when controls were introduced.³ There was evidence that trainees at the manufacturing company were 7% more likely to apply for and gain (internal) promotion ('upgrade').

There was also some evidence that trainees at the service company were more frequently nominated for or won a performance award⁴ compared to non-trainees. These awards were used by the researchers as a proxy for increases in productivity, although the differences might also be largely accounted for by other personal characteristics of the nominees. Workers who had participated in the program had a lower absenteeism rate during the weeks in which they had classes and this effect continued for the next two months, although it was quite small. It does, however, suggest that workers enjoyed the classes. Finally, there was no evidence that participation in training made workers either more or less likely to leave the company after training.

The authors were not able to measure changes in productivity directly, but did try to do so indirectly by asking participants a range of questions about their own self-perceived productivity as well as about other relevant 'subjective' variables. Examples of such variables were:

- attitude towards their job, desire to take additional classes, satisfaction with their
- company and membership of community organisations. In the service company, self-reported
- productivity was higher among trainees: this may reflect performance or may reflect higher
- self-esteem.

For almost all of the other variables measured, differences between training program participants and non-participants did not reach conventional levels of significance (especially after controlling for personal characteristics)

One exception was that participants at both companies were significantly more likely to report that they planned to take additional classes in the future compared to non-participants. This study is also highly unusual in providing some estimates of the rate-of-return to the employer of the training expenditure. On the basis of the actual costs incurred – namely, that the federal subsidy covered approximately half the costs of the training – the authors conclude that, at least in the manufacturing company, the training paid for itself⁶: but that '... it is not clear that other (manufacturing) firms would find it worthwhile to undertake such training in the absence of a subsidy'. This is based on a rather low estimated initial return to the training based on the wage increase for participants (and in the absence of clearly measured outcome data for before and after the training).

C. Hollenbeck, 1996

In the United States, Hollenbeck (1996) derived a framework for analysing the costs and benefits of work-based literacy programs. The framework includes four groups that may benefit from improved skills in the workplace. These are the employees who receive the training, the employer, the rest of the society and the education sector. Hollenbeck's framework proposes the measurement of eight indicators. These are:

- Training costs
- Productivity
- Wages
- Non-wage compensation
- Worker turnover
- Safer workplace
- Taxes
- Self-esteem

Table A5.9 A framework for assessing the economic costs and benefits of workplace literacy and numeracy training

Benefit or cost	Workers	Employers	Rest of society	Education/ training establishment	All
1. Training costs	0/-	-	0/-	+	-
2. (Higher) productivity	0	+	+	0	+
3. (Higher) wages	+	-	0	0	0
4. Non-wage compensation	+	-	+	0	0/+
5. (Less) worker turnover	+	+/-	+	0	+
6. Safer workplace	+	+	+	0	+
7. (Higher) taxes	-	0/-	+	0/+	0
8. (Improved) self-esteem	+	0	0/+	0	+
Net benefits	+	-/+	+	+	+/-

Source: Hollenbeck, 1996

Hollenbeck (1996) suggests entering the costs and benefits proportionally in a common unit such as dollar values and using a net present value method (discounting future benefits and costs to their present value). This approach allows the costs and benefits to be summed to determine the total net benefits or costs. In monetising the benefits and costs, Hollenbeck indicates this can occur before training through prediction or after training through estimation or measurement. Hollenbeck also suggests that analysts can weigh the various components of the costs and benefits differently. However no further information or examples on how to weight the components differently is supplied. The rate of return on investment is finally calculated by dividing the total net benefits or costs by the total investment cost.

D. Hollenbeck, K., & Timmeny, B. (2008). Lessons learned from a workplace literacy initiative. *Employment Research*, 15(2), 4-6.

Participants reported greater confidence and attributed improved job performance to improvements in their literacy and math skills. Hollenbeck and Timmeney's (2008) study of 10 workplace programs in Indiana reported reasonably positive results for the company and participants but also pointed out issues such as the lack of contextualization and the need for greater flexibility in the programs. The study endeavoured to carry out pre- and post-course Comprehensive Adult Student Assessment System (CASAS) reading and math tests but ran into logistical difficulties carrying out the tests, resulting in post-course data from only three sites covering 140 (16%) of the total participants. The authors reported that participants made modest learning gains in math and reading.

E. Hollenbeck *et al*, 2009

Hollenbeck *et al*, 2009, in an evaluation of a State-Funded Workplace Literacy Program, found a significant interest in college attendance by incumbent workers, higher-than-expected levels of literacy in pre-assessments, little reliance on contextualization, and the importance of a program champion and supervisory support at workplaces. Business return was not formally measured, but employers and workers reported significant morale gains and frequent productivity gains.

The evaluation of a set of workplace literacy pilot programs, publicly funded by the Indiana Department of Workforce Development (DWD) conducted research with an innovative set of 10 projects making up its 21st Century Workplace Skills Initiative. Despite their understanding of the strategic nature of

training, perhaps the most notable observation about employer involvement was the lack of interest in or attempt to measure potential business outcomes from the initiative. It became apparent through interviews that businesses became engaged in the initiative mainly as a benefit for employees. They saw it as a way to improve employee morale. Most of the business representatives understood and articulated the fact that if workers would improve their basic skills and exhibit higher levels of morale, then they would likely be more productive. However, virtually none of the employers attempted to measure such outcomes. In one instance, the business representative indicated that retention was a major concern in their company given the competitive local job market. The representative even commented that the company lost fewer workers during the traditional summer hiring period as a result of this training program; however, there was no formal retention tracking by position or within this training program.

A 2009 American report on a workplace literacy program funded by the State of Indiana underlined a “notable” tendency among the employers involved: Despite their understanding of the strategic nature of training, perhaps the most notable observation about employer involvement was the lack of interest in or attempt to measure potential business outcomes ... It became apparent through interviews that businesses became engaged in the initiative mainly as a benefit for employees. They saw it as a way to improve employee morale. Most of the business representatives understood and articulated the fact that if workers would improve their basic skills and exhibit higher levels of morale, then they would likely be more productive... (Hollenbeck and Timmeney 2009: 18).

F. Holzer *et al.* (1993)

Turning to the international literature, a number of important studies use US firm-level data. Holzer *et al.* (1993) gathered data on manufacturing firms in the Michigan area of the United States in the period 1987 to 1989 and investigated the effects of training (hours of training per employee) on the scrappage rate (percentage of units manufactured which had to be discarded as faulty) as a measure of productivity. Sample sizes varied between 60 and 107 firms. They found that firms with higher levels of training had lower scrappage rates – in fact a doubling of the volume of training per employee reduced the scrappage rate by about 7%.

Holzer *et al.* use the scrappage rate as a measure of productivity and hours of training per employee as their measure of training. They find that increased training reduces the scrappage rate; for example, a doubling of the amount of training per employee reduces the scrappage rate by about 7 percent. Hence, they find evidence of a direct link between training and productivity.

A5.7. Other regions

A. Pye & Hattam, 2008 - Workplace basic skills training impact evaluation: research report for the Leonardo da Vinci WoLLNET project

This is the final research report by Marchmont Observatory, University of Exeter, as providers of expert research services for the Leonardo da Vinci WoLLNET [Workplace Literacy, Language and Numeracy Evaluation Toolkit] project, funded under the new European Union Lifelong Learning Program. The project aims to research, trial, pilot and develop a web-based, user-friendly toolkit to enable employers, providers and unions to evaluate the impact of workplace basic skills (literacy, language and numeracy) training programs on learning, individual work performance and organisational performance.

As per the WoLLNET project documentation, the toolkit will include: (1) a workplace basic skills training impact evaluation tool based on the needs of stakeholders and grounded in good practice models of workplace training evaluation; (2) bespoke data analysis and reporting tools; and (3) guidance documents for toolkit users on good practice in workplace basic skills training impact evaluation. The overall purpose of the underpinning research presented in this final report is to collate approaches and models currently used in impact evaluation at all stages in the training process. We identify and survey theories behind individual and organisational program and training evaluation in the workplace. Practice and practical evaluation exercises across contexts are considered with specific reference to basic skills. We then categorise impact analysis models according to structure and purpose with a view to recommending particular approaches to serve as the basis for the WoLLNET Toolkit.

A 2008 report published as part of a larger (European) project to develop a workplace LLN evaluation toolkit, found, after a comprehensive review of international sources, that there is “little literature available specifically on . . . evaluation of training interventions on basic skills, literacy or numeracy in the workplace”. The report cautioned that, given how “sparse and diverse” the literature, it would be

difficult to “draw generalised conclusions on the most appropriate techniques” (Pye and Hattam, 2008:10, 38).

One example of this development is provided by the WoLLNET Project (jointly funded by the European Commission's Leonardo da Vinci Sub-Program, the London Development Agency and the Learning and Skills Council London Region), which is currently “developing a web based, user-friendly, theoretically grounded Toolkit to enable employers, providers and unions in participating countries to systematically evaluate the impact of workplace basic skills training programs”. One of the key innovations featured in the project is to “extend the traditional areas of workplace basic skills training evaluation beyond the typical focus on learner response performance”. The stated goal of this shift is to generate evidence that can help “make a strong business case” to employers for basic skills training (WoLLNET Workplace Literacy Language and Numeracy Evaluation Toolkit Project: http://www.wollnet.org/inbrief_en.htm). Also in the UK, the Enhancing 'Skills for Life' Project has been tracking outcomes to both workers (improved LLN skills) and their employers (productivity) (Gray 2006: 74).

A recent survey of European employers offering literacy and essential skills training in their workplaces supports this view. For example, most participants from the Irish group interviewed believed that the evaluation of organisational/financial impact was “important” or “essential. At the same time, however, they expressed strong support for evaluating improvements in the LLN skills of their workers as well as capturing so-called “soft measures” or “intangibles” (nonmonetary), such as increased morale, self-esteem and confidence, greater job satisfaction, greater participation and a willingness to continue work-related training (Pye and Hattam 2008: 49-50).

The Promoting Added Value through the Evaluation of Training (PAVE) Evaluation Resource Pack was developed and piloted as part of a European Union project in 1998–2000 (Field 1999). It provides: background theory; various contexts and frameworks for organisations to consider; reflective questions to guide employer selection of appropriate evaluation methodologies; evaluation tools and examples of their application; and an annotated bibliography. The initial target audience for the resource pack is intermediaries (such as government training agencies, chambers of commerce, universities and training providers), together with human resource practitioners in larger organisations. Field indicates that, without the support of intermediary organisations, small and medium-sized organisations that lack a training culture and structure are unlikely to use the pack.

B. Barrett and O'Connell (2000)

In Ireland, the National Adult Literacy Agency (NALA) promotes workplace literacy programs within the vocational education sector and in government. An Irish study by Barrett and O'Connell (2000) examined the effect of training on productivity growth in a sample of approximately 200 Irish enterprises over the period 1993 to 1995. It was found that training had a positive effect on the growth of productivity over this period. The authors also distinguished empirically between general and specific training and showed that while general training had a positive influence on enterprise productivity growth, specific training did not. (Basic skills training would definitively count as 'general' but we do not know how much of it there was.)

Skillnets (2005) presents a case study of a meat processing company in Ireland that provided English language training to its employees who were largely migrant workers. To calculate ROI, data related to tangible benefits was used and compared to the cost of training. It was found that the training had generated a ROI of 61%.

C. Ottersten et al. (1996)

A study in the Netherlands by focused on cost reduction rather than productivity. Data on eight Swedish firms in the machine tools industry indicated that workplace training had a large effect on cost reduction. The very small sample size is an obvious limitation of this research. De Koning (1994) reports briefly on a survey of 2,000 companies in the Netherlands. He states that external training had a statistically significant positive effect on productivity, while internal training also had a positive effect but was not statistically significant. The effect of training on productivity was quite small in that a doubling of the training effort raised productivity by approximately 10%. However, as Green (1997) has noted, there is not enough information in the paper to properly evaluate the findings. The survey appears to have been cross-sectional, but no tables of statistical results are presented and it is not clear how either the productivity or training variables were defined and measured. So, the reported findings must be treated with some caution.

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³⁰ This reference is inclusive of all Measures of Success reports and documentation. Available here: <http://www.centreforliteracy.qc.ca/node/170>

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